

# SUPPLEMENT.

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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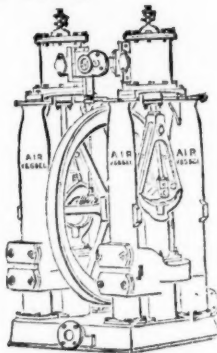
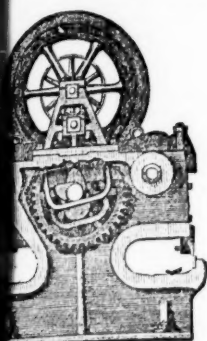
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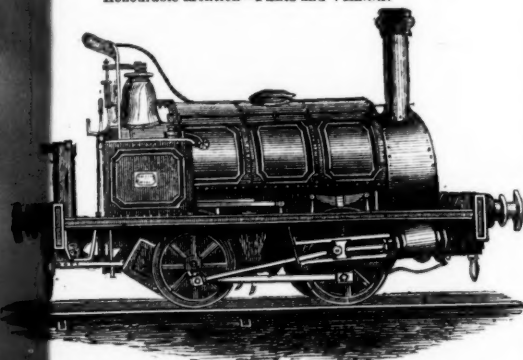
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PARIS,  
BRONZE MEDAL, 1867.



ORDER OF THE CROWN OF PRUSSIA.



FALMOUTH,  
SILVER MEDAL, 1867

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the  
Geographical Congress, Paris, 1875—M. Favre, Contractor, having  
exhibited the McKean Drill alone as the MODEL BORING MACHINE  
for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland  
Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

## THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecu-  
tive weeks, ending February 7, was 24-90, 27-60, 24-80, 26-10,  
28-30, 27-10, 28-40, 28-70 metres. Total advance of south head-  
ing during January was 121-30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tun-  
nel, the McKean Rock Drill continued to work until the pres-  
sure was reduced to one-half atmosphere ( $7\frac{1}{2}$  lbs.), showing  
almost the entire motive force to be available for the blow  
against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these  
Machines for the SEVERN TUNNEL; the LONDON AND  
NORTH-WESTERN RAILWAY for the FESTINIOG TUN-  
NEL; and the BRITISH GOVERNMENT for several Public  
Works. A considerable number of Mining Companies are now  
using them. Shafts and Galleries are driven at from three to  
six times the speed of hand labour, according to the size and  
number of machines employed, and with important saving in  
cost. The ratio of advantage over hand labour is greatest  
where the rock is hardest.

These Machines possess many advantages, which give them  
a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL  
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NELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the  
most portable—the most durable—the most compact—of the  
best mechanical device. They contain the fewest parts—have  
no weak parts—act without SHOCK upon any of the operat-  
ing parts—work with a lower pressure than any other Rock  
Drill—may be worked at a higher pressure than any other  
—may be run with safety to FIFTEEN HUNDRED STROKES  
PER MINUTE—do not require a mechanic to work them—are  
the smallest, shortest, and lightest of all machines—will give  
the longest feed without change of tool—work with long or  
short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or  
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grit and accidents. The various methods of mounting them  
are the most efficient.

N.B.—Correspondents should state particulars as to  
character of work in hand in writing us for information,  
on receipt of which a special definite answer, with  
reference to our full illustrated catalogue, will be sent.

PORTABLE BOILERS, AIR COMPRESSORS, BORING STEEL,  
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Requires only 20 lbs. steam or air-pressure.

Has only two moving parts—thus ensuring freedom from de-  
rangement, and is absolutely self-feeding.

Is excessively light, and can be carried by one man, who can  
with the No. 1 size (weighing only 35 lbs.) drill 40 holes  
 $\frac{1}{2}$  in. diameter and  $1\frac{1}{2}$  in. deep per hour, in the hardest Aber-  
deen granite for splitting purposes.

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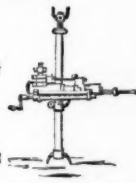
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CHEAPEST, SIMPLEST,

STRONGEST, & MOST EFFECTIVE

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IMPORTANT NOTICE TO MINE PROPRIETORS.

MR. GEORGE GREEN, ENGINEER, ABERYSTWITH,  
SUPPLIES MACHINES under the above Company's Patents for  
DRESSING all METALLIC ORES. Dressing-floors having these Machines pos-  
sess the following advantages:—

- 1.—THEY ARE CHEAPER THAN ANY OTHER KIND IN FIRST OUTLAY.
- 2.—ONLY ABOUT ONE-FOURTH OF THE SPACE USUALLY OCCUPIED  
BY DRESSING-FLOORS IS REQUIRED.
- 3.—FROM 60 TO 70 PER CENT. OF THE LABOUR IN DRESSING, AND  
FROM 5 TO 10 PER CENT. OF ORE OTHERWISE LOST, IS SAVED.
- 4.—THEY ARE THE ONLY MACHINES THAT MAKE THE ORE CLEAN  
FOR MARKET AT ONE OPERATION.

They have been supplied to some of the principal mines in the United Kingdom  
and abroad—viz.,

The Greenside Mines, Patterdale, Cumberland; London Lead Company's Mines  
Darlington, Colberry, Nanthead, and Bollyhope; the Stonecroft and El Greyside  
Mines, Hexham, Northumberland; Wanlockhead Mines, Abington, Scotland (the  
Duke of Buccleuch's); Bewick Partners, Haydon Bridge; the Old Darren, Esgr-  
mwyn, and Ystumtuen Mines, in Cardiganshire; Mr. Beaumont's W.B. Mines,  
Darlington; also Mr. Sewell, for Argentiferous Copper Mines, Peru; the Brate-  
berg Copper Mines, Norway, and Mines in Italy, Germany, United States of  
America, and Australia, from all of whom certificates of the complete efficiency of  
the system can be had.

WASTE HEAPS, consisting of refuse chads and skimpings of a  
former washing, containing a mixture of lead, blende, and sulphur,  
DRESSED TO A PROFIT.

Mr. BAINBRIDGE, C.E., of the London Company's Mines, Middleton-  
in-Teesdale, by Darlington, writing on the 20th March, 1876, says—"The yearly  
profit on our Nanthead waste heaps amounted last year to £600, besides the ma-  
chinery being occupied for some months in dressing ore-stuff from the mines. Of  
course, if it had been wholly engaged in dressing wastes our returns would have  
been greater; but it is giving us every satisfaction, and bringing the waste heaps  
into profitable use, which would otherwise remain dormant."

Mr. T. B. STEWART, Manager of the Duke of Buccleuch's Mines,  
Wanlockhead, Abington, N.B., writing on 20th March, 1876, says—"I have much  
pleasure in stating that a full and superior set of your Ore Dressing Machinery has  
been at work at these mines for fully a month, and each day as the moving parts  
become smoother, and those in charge understand the working of the machinery  
better, it gives increasing satisfaction, the ore being dressed more quickly, cheaply,  
and satisfactorily than by any other method."

Mr. BAINBRIDGE, speaking of machinery supplied Colberry Mines,  
says—"Your machinery saves fully one-half on old wages, and vastly more on the  
wages we have now to pay. Over and above the saving in cost is the saving in ore,  
which is a .1 much short of 10 per cent."

GREENSIDE MINE COMPANY, Patterdale, near Penrith, say—"The  
separation which they make is complete."

Mr. MONTAGUE BEALE says—"It will separate ore, however close  
the mechanical mixture, in such a way as no other machines can do."

Mr. C. DODSWORTH says—"It is the very best for the purpose  
and will do for any kind of metallic ores—the very thing so long needed for dress-  
ing-floors."

Drawings, specifications, and estimates will be forwarded on application to—

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IMPORTS AND EXPORTS OF METALS—FIRST MONTH  
OF 1877.

There does not appear to be any change in the course of the metal trade at the opening of the year. Our imports are from the same sources, and our customers are also the same. The United States of America appear to have ceased altogether to deal with us for copper. The trade thither in lead had nearly expired, but last month showed decided symptoms of revival. Tin with the States remains in *status quo*. With Russia it has nearly ceased. Viewing

The Silurian formation is largely developed in the borders of

Before concluding a somewhat lengthy letter, I would call attention to a remark, and possibly a misstatement on the part of the Chairman who is reported to have "reminded the company that when the son of Nobel, the manufacturer of nitroglycerine, was blown up at Stockholm, and nothing was found of him but a pair of boots, Nobel declared the very next morning that nitroglycerine



was the safest explosive in the world." What is his authority for this remark? Is he aware that Mr. Nobel has never married, and has had no son.

A READER.

## NEW STEAM-ENGINE GOVERNOR.

SIR,—Much has been heard and seen lately of governors for steam-engines. The engineering world will do well to suspend their judgments for a short time. There is at present in the hands of a gentleman in the City of London (not an engineer) a patent steam regulator or governor which has been proved to excel any machine yet known. At the largest works in Europe one has been tried, and another to govern a very large engine is now making. The opinion there expressed by proprietors and engineers (not a few) was that it answered perfectly all requirements, and far surpassed any of the very great number they had tried. It has been fitted to a screw steamer belonging to an engineering firm of the highest standing, and is a perfect success, no racing, whether the screw be out of water or in it. For marine or stationary engines it can be placed in any position (upright, on side, or even upside down), and works equally well. Racing and irregularity is a simple impossibility under any pressure of steam. It cannot be forced beyond speed at which it is set, be the speed what it may, and even if all work be simultaneously thrown off the engine cannot be made to race. There will shortly be a working model on view by invitation, and cards will be given in due time for it to be seen at the workshops.

E. K.

## TECOMA MINING COMPANY.

SIR,—It was with great astonishment that I read a paragraph in last week's *Mining Journal* referring to this action, but I refrain from commenting upon the gross misstatements therein contained for reasons which will be obvious to you after perusing the enclosed copy of a letter this day sent by my solicitors to the directors of the company. For the present, therefore, I shall only say that at the proper time I shall be prepared to prove the absolute inaccuracy of the assertions made by the secretary of the company, and published in your *Journal*, and I will thank you to insert this letter as well as the subjoined copy.

J. R. COOMBS.

## COOMBS v. THE TECOMA SILVER MINING COMPANY.

To the Directors of the Tecoma Silver Mining Company (Limited). GENTLEMEN,—Our client's attention has been directed to statements which appeared in the *Mining Journal* of the 3d inst., purporting to emanate from your secretary. We must say that, after the remarks made by the judge, and emphatically endorsed by the jury, we are greatly astonished at the repetition, or rather insinuation, of assertions which, when put to the test, you were utterly unable to establish. These, however, we need hardly say if left uncontradicted are calculated to convey an utterly erroneous impression of the reasons by which the jury arrived at the verdict against your company, and, consequently, are likely to do Mr. Coombs considerable harm, and he has, therefore, instructed us to obtain from you an immediate retraction of such misstatements in such a public manner as shall be decided upon, otherwise he will have no option but to take legal proceedings to vindicate his character. We shall be glad of your reply at the very earliest convenience.

69, Lincoln's Inn-fields, W.C., Feb. 7.

BAYFUS and BAYFUS.

## THE FLAGSTAFF MINE—JUDICIAL DECISION IN FAVOUR OF THE COMPANY.

SIR,—The decision (referred to in another column) of Chief Justice Schaeffer in the case of the Flagstaff Company v. Irvine Davis *et al.* will be interesting to many of your readers, especially when considered in connection with the fact that the mine is in excellent condition both as regards the manner of exploitation and the large reserves of ore on hand. The dishonesty of the late management had become so very generally known that in his efforts to control the mine for the benefit of the shareholders Mr. Hunter has had the sympathy and support of the entire mining community. Perhaps it may be proper to add that the quiet business-like manner with which Mr. Hunter commenced operations here has greatly prepossessed our people in his favour. Not conducting business after the manner of some managers whom the English companies have too often sent here to represent them, the impression is becoming general that with the large output of ore, of which the mine is capable, the profits to the shareholders will strengthen the belief which seems slowly, but surely, gaining ground in London that the many failures attending the investment of English mining capital here are not altogether due to causes existing on this side of the water. The present daily yield of ore from the Flagstaff Mine is fully 60 tons, of this four-fifths, constituting the first-class ore, brings \$13 per ton, while the remaining one-fifth, being second-class ore, is sold for \$15 per ton. The working expenses will represent a trifle over 50 per cent. of the gross yield, thus leaving fully \$1000 per day for profit.—*Salt Lake City.*

ENGINEER.

## THE FLAGSTAFF MINING COMPANY.

SIR,—Our directors appear to deserve great credit for their successful efforts to obtain possession of the mine from Mr. Davis, and our obligations to them would have been greatly enhanced if they had sooner communicated to us the welcome intelligence, and under what circumstances the very desirable result referred to was achieved. I gather from what has been made public that Mr. Hunter obtained possession of the mine about December 20, but this fact was only communicated to us by our directors in their circular dated January 5, and without any intimation as to whether possession was obtained by force (which would probably involve further litigation with Mr. Davis, and expense to the company), or under legal sanction. That the latter was the course adopted is now clear from the statement in the directors' circular, dated January 16, that "the Court at Utah had confirmed the company in possession of the mine," as well as from other sources. Owing, however, to the absence of information, and consequent uncertainty on this point, those shareholders (and they are many) who had paid 15¢ to 16¢ per share were prevented from buying more shares at their comparatively low price about a month ago, and so averaging their holding by which they would have reaped the benefit of the great rise which has since taken place in the price of the shares, an advantage of which those who had full information were enabled to avail themselves. The shareholders have also reason to complain of the delay on the part of the directors in communicating information respecting the present state of the mine, as to which apparently they were well acquainted. Mr. Vincent's report of July last (a summary of which is annexed to the directors' circular of December 3) only records the result of his inspection of the mine in the previous March, and to no later period; and although the directors appear to have been ever since kept well informed as to the state of the mine, the first information they communicated to the shareholders on the subject is that contained in their circular, dated January 26, long after the great rise in the price of the shares had taken place. I consider, therefore, that in delaying so long to communicate to them information on the two important points adverted to our directors showed a want of proper consideration for the interests of the shareholders.—*Feb. 7.*

A. B.

## RICHMOND MINING COMPANY.

SIR,—"Bears" appear to be most useful animals to certain persons connected with the Richmond Mine. Your two correspondents of last week, "A Shareholder" and "Another Shareholder," each, more or less, lays upon the poor "bears" backs all the onus of depressing the shares, and I have found when I used to call at the office for explanation of some sudden depression in the shares that the "bears" were almost invariably pointed out as the great culprits; indeed, I do not know how they could possibly get on at all in some companies without a few of these animals. But I say however much or little the "bears" have effected they have been able only to effect in consequence of that concealment which is, and has been, the policy of the Richmond directors, and I say further, if the officials of the Richmond Company would act in a frank and candid manner that Richmond shares would be as stable and steady as the shares of other mining companies, and as free from sudden and great fluctuations.

We have had of late, now and then, a grand flourish of trumpets about prosecutions, and there was at the last meeting a very grand flourish indeed about prosecuting Mr. McHenry, but it ended as I

expected it would—in nothing. Indeed, I am confident the directors will never venture upon any prosecution of the kind, as it would be the means of letting in a vast deal more daylight than would be agreeable; therefore, Mr. McHenry and his compeers know they have nothing to fear from these threats.

Now, in my opinion, those persons, whatever they may have been their intentions, have been, unwittingly no doubt, the cause of a great deal of good in bringing to light many things that would have been otherwise kept in the dark, as, for instance, that revelation respecting the electric message from Mr. Probert to the vice-chairman which Mr. Aston was the means of bringing to light, of which the directors made such a dreadful muddle in their endeavour to explain, and which, there is no doubt, one of the officials of the company communicated to Mr. Aston for jobbing purposes.

COMMON SENSE.

## THE RICHMOND MINING COMPANY.

SIR,—I do not know whether the author of the letter signed "A Shareholder," in last week's *Journal*, writes under official inspiration or not; but as he would seem to imply at the close of his letter that the board had decided to withhold the quarterly dividend now due, in consequence of the recent action on the part of the Eureka and K. K. Companies, I think it right, as one largely interested in the Richmond, to raise my voice against such an ill-judged step. Assuming the able and lucid statement of the facts of the existing dispute between the companies referred to, as given by "A Shareholder," in the Supplement to the *Journal* on Jan. 27, to be strictly accurate, and looking to the strong financial position now occupied by the Richmond, it appears to me that if the present dividend be withheld it would only serve as a handle to the "bears" to continue their attacks, and act as an encouragement to timid shareholders to play into their hands by the needless sacrifice of their shares.

A. B. C.

## DARTMOOR—ITS MINERAL DEPOSITS, AND ITS RAILWAY.

No. I.

SIR,—In the present time of great depression in Cornish and Devon mining you will kindly allow me a small space in your valuable *Journal* to call the attention of the capitalists and public in general to the merits of Dartmoor, and the necessity for a railway from either of the main lines? The proposed railway, either from Okehampton, or down the centre of the Moor, would not exceed 16 miles; whilst a branch line up the Meavy Valley from Yelverton, on the Tavistock branch, would not exceed, I think, 8 miles. There are no engineering difficulties either way. The Duchy, or His Royal Highness the Prince of Wales, we are informed is prepared to make a free offer of such land as may be required within the Duchy estates, so that a very small capital would be required to construct the line. Dartmoor, rich in minerals as it is, is but little known, and you will be surprised to learn the prejudices and ideas of many professed learned men on the resources and capabilities of the Moor.

Dartmoor is rich in tin, peat, granite, and immense deposits of beautiful clay for the potteries, bleaching and stiffening purposes, both in the paper and calico manufactures. From time unknown china clay and bleaching clay in vast quantities have been cropping out here and there on the Moor, in the same form as at the Shaugh, now Lee Moor, clay works. Those works, Lee Moor, were opened on a limited scale previous to 1828 on the top of the hill east of Cornwood Road from Tavistock. The commencement of the work was much the same here as on most clay deposits. To make the same a profitable undertaking some miles of water courses, cart roads, washing tanks, &c., in the usual way, had to be made and laid down. In an open exposed district of this kind the erection of cottages, sheds, and the like, was soon felt to be indispensable for the benefit of the works. This led to the building of the cottages on the road to Cornwood from Tavistock. Time moved on faster than the works, although other deposits of clay were discovered on the property. The capital of the company had become so low, and the sales of clay limited, there were some years of inactivity. The clay trade at that time not being good, and trade and commerce in those days being but little known to us, our markets may be termed chance markets, now and then a cargo or two of clay required. Stocks of clay in casks in those days accumulated at the works to remain there even for years. Our calico trade, in printing, stiffening, bleaching, &c., as well as the china and earthenware, taking but little from our out-of-the-way works; still, with the exception of a check or temporary suspension now and then, the opening and washing of clay continued with various changes pointing to success by perseverance and capital. The company being about this time reformed and taken over by other gentlemen, they determined to open and prosecute the works on a large scale. It was then the western bogs of Lee Moor—i.e., to the right of the Cornwood road from Tavistock—were opened beneath the peat, and gave unmistakable evidence of great wealth in clay under the peat bog, and as a fact it has continued from that time up to the present. Previous to the discovery of this vast bed or deposit of clay beneath the bogs, and even at the commencement of clay working on that section of the Moor, those bogs were the favourite resort of snipe, with now and then a solitary woodcock or hare. It was the favourite sporting ground of the late Mr. Paul O'Treby, of Goodmoor, than whom there were but few better sportsmen. Mr. Paul (his local name) being as due from day to day with his old favourite white setter dog on those bogs after the snipe in the autumn and winter as the clay workers were to their work. Mr. Paul could and did bag his snipe, and at luncheon time enjoyed his short black pipe, and would again and again work over the same ground till night set in, only to be resumed early the following morning, save and except a red-coat day with the fox hounds, a day of rest for the snipe. Now, opinions differ; Mr. Paul declared the bogs of Shaugh Moor would only produce a few snipe, rushes for candle making, and a little fodder for a stray Dartmoor pony, and whoever attempted or expected to get more than this out of it (in his opinion, which was seldom wrong) could only be taken as a fit person for a lunatic asylum, and the poor fools who were wasting their money in this way he pitied; in fact, he would not give his old worn-out shooting boots for the whole concern. Moreover, those cursed clay men with their terrier and spaniel dogs were driving all the snipe from the Moor. This was the secret, no doubt, of Mr. Paul's theory. Clay working continued to prosper and increase, and the favourite snipe to decrease. The output of clay over the then wretched roads began to tell on the various teams of horses tugging away at a half bog wagon or cart fully loaded having come to grief by sinking deep through the crust or coating of the road—it had become completely set fast. The writer of this paper has seen six horses hard at work doing their best to get a tin of clay from the bog into the good road on its way to Plymouth, thence to be shipped to its destination.

Here lay the secret of all loss, trouble, and delay in the delivery of goods to the port of Plymouth. The short notice of a ship being waiting at the port of Plymouth for a small or large cargo, the length of time required with such bad roads to get a cargo from the works to Plymouth were too costly to be endured. What could be done? The works are good, in fact very good. Abundance of clay and water, cottages erected, with all the necessary kilns, stacks, and other requirements for a large and extensive property, save and except a railway, the then carriage by horses and wagons frequently costing from 10s. to 12s. per ton in the delivery of clay, brick, tile, &c., from the works to Plymouth. It was at last determined that a railway and nothing but a railway was required to make this a great and profitable undertaking, and to work its abundant resources as they could and should be worked. The railway was commenced and in time completed direct into the works, through the parishes of Shaugh and Plympton, and on a parallel with the South Devon Railway at Marsh Mills to Plymouth, thus giving an immense impetus to the works, and a full and open delivery of goods to port. As a result the delivery of goods is now reduced to a mere fraction, the saving in carriage alone being a splendid profit to the fortunate proprietors. The Lee Moor clay, bricks, and tile command the best market prices of the day, and we may now see the best brands of these works throughout the large potteries and cotton and paper manufactories of the United Kingdom, as well as

on most of the American and colonial markets. The large and splendid manufactory or establishment employing 400 people, its output being near 100 tons of goods daily, in rents and dues 6000£, per annum to the lord of the land, and 400£ in rates and taxes, leaving 20,000£ per annum profit to the fortunate adventurers. In round numbers the good old mine employed 50,000£ per annum for the public good. In addition to the employees at and on the works there are thousands of people employed directly or indirectly in the designing and manufacturing of the product of those works throughout the country, as in the shipping and other branches of commerce. In fact, had not the great and grand expansion of home and foreign commerce which has sprung into existence since the death of our old friend Mr. Paul O'Treby. As a new feature we have Crownhill Down the Edden Clay Works, now a growing and valuable property, with splendid prospects for the future. To the of the Lee Moor Works we have the Cholwich Town Works, bogs well known to gentlemen in scarlet, as well as to the shooter. Here in 1834 a few trial pits were sunk, prospecting it were for clay, and in a few hours only clay was struck and is now Admiral Parker's estates. The manager of then Shaugh, now Lee Moor, obtained permission to make a trial of what appeared to be good clay ground. Some difficulty having arisen at that time as to the terms (rents, dues, &c.) no company was induced to carry it on to a start, so it lay quietly until the late years. The works are now opened by the Lee Moor Company, extensive rich property, giving full employment to a large number of men and boys. The South Devon Railway is near by at Cornwood, taking the produce direct to the Great Western Docks, Plymouth. Until the last five or six years the discovery of clay in the Moor had been unwrought, and these great riches neglected and of no trade or commerce, but thanks to Messrs. Martin Brothers, who are now developed in the best possible way, giving thousands of pounds yearly to the public in wages alone, and large dividends to the proprietors. A railway, then, for Dartmoor will pass the Moor and open up rich and extensive clay deposits and granite which will be taken direct from the works on to the Great Western Docks, Plymouth, at a cost of about 1s. 6d. per ton only.

YOUR CORRESPONDENT.

## ROYAL CORNWALL POLYTECHNIC SOCIETY.

SIR,—This society was instituted about the year 1833 or 1834, the annual meetings and exhibitions have been held at Falmouth ever since. I never knew any institution so stationary in its prospects; its meetings and its condition have been without change after more than 40 years existence. I have suggested that progress might be ensured by making the exhibition migratory, like of the Royal Cornwall Agricultural Society, which take the year of Truro (where the first exhibition was held about the year 1840), Falmouth, Penryn, Camborne, St. Austell, Liskeard, Launceston, in succession. By this migration the society's exhibition has to a magnitude never, perhaps, contemplated by any person, instead of taking a meadow of 3 acres, like the site of their exhibition, they now take several enclosures, throw down their fences, and prepare a clear space of about 15 acres for showing stock entered for exhibition. By this proceeding the society has been enabled to increase the number and amount of the prizes which draw exhibitors and visitors in considerable numbers, and think the Royal Cornwall Agricultural Society's exhibition is little inferior to that of the Bath and West of England.

As the Cornwall Polytechnic Association is a county, and Falmouth, association, I see no reason for confining its meetings to that town. It has not claims equal to Truro, St. Austell, or Liskeard, all of which are more central. If any one town be considered as having exclusive claims to the exhibition, a society Truro is that town, but it is not desired. Truro people not so selfish as to desire it, but we are better provided than most with its (with its Polytechnic Hall) with room for exhibiting all sorts. If the Polytechnic committee wish to extend the of the institution and to increase their revenue they will be suggestion by following the example of the Royal Cornwall Agricultural Society in making their exhibitions migratory. For success of the Cornwall Agricultural and the Bath and West of England Societies, arising from their migrations, I am confident similar results from migrations of the Polytechnic annual exhibition, if adopted.—*City of Truro, Feb. 7.*

R. SIMS.

## SOUTH CONDURROW.

SIR,—Holding a few shares in the above mine, I was again disappointed at receiving a cheque for 4s. a share, which I at all expect, as the notice convening the meeting did not state (which it generally does) that a dividend would be given. If the water in the mine, and the low price of tin, I presumed, could not do more than pay expenses; yet not only have they that, but after paying the dividend have a sum of 741£, to be next account. Yet, notwithstanding the mine is paying, I understand how the expenses stand at so low a figure.

Belfast, Feb. 7.

AN IRISH SHAREHOLDER.

## CARDIGANSHIRE MINES, A.D. 1877—No. II.

SIR,—I promised in my last to commence this letter by giving some information respecting the Penybwlch Mine, which is situated to and adjoins the Blaen Caelan Mine, and stands to the east of it. If we are to put any credence in historical records, this was the time of Waller the richest mine for lead worked in the Principality having given more than 75,000£ annually in profits from working. From the size of the lode, which in places is as much as 90 ft. wide, this is by no means improbable, as the ore is solid branches and courses, varying in size from 3 in. up to 12 in. wide, so that the entire yield of the vein is simply enormous. Carbery Price, ancestor of the Gogerddau House, is said to have fused 75,000£, for 10 moieties of the mine. The mine has only worked to the depth of the 30 ft. level, under adit, the present workings being at and above the 10, under adit. When the 30 ft. levels shall have been properly opened out there is no question that immense returns of lead ore will be made. It is commended to bring up a deep adit level from the west end of the set, on the Blaen Caelan, or north lode, at Penybwlch, and the work is carried out it will lay open ore ground enough, if carried to the eastern boundary, to work away for the next 50 years or out sinking a foot underneath it. However, I may say that the sands of tons of lead ore have been raised on tribute on the which was laid open by the driving of a cross-cut at the adit to hole to the Blue shaft. Nothing was ever done on it to reach the levels east and west, and it has never been seen under the A pitch on tribute was let over the adit about three months ago, where they have struck on a solid rib of ore about 15 in. wide, men making from 12s. to 15s. per month each. I have only to conclude this, that should Messrs. Williams and Son, metallurgists at Aberystwyth, who are now the sole proprietors, meet with a put the mine into proper working order and to carry out the trials recommended by me, and which appeared in the *Mining Journal* some four months ago, I see no reason why this mine should not again become as rich as it was in the days of Waller, and probably the richest lead mine ever opened in the Principality.

To the East of Penybwlch Mine, and also adjoining it, stands Esgrair Fraith Mine, where the lode has undergone, through the process, a very decided and marked change to what it was in the westward. The vein is much narrower, varying from 20 to 30 ft. wide, with one of the richest gossans ever laid open in this country. The vein, instead of being composed of crystallised quartz and lead, as is the case in Penybwlch, contains a beautiful spar and carbonate of lime, with branches of yellow and copper ore, varying from 1 to 18 in. wide, solid. It gives a percentage of about 35, the last parcel having been sold to Messrs. Sims, Druce, and Co. for 25s. 10s. per ton. A good quantity of ore is now at surface awaiting dressing. The mine is only 10 fms. under the adit, where there is a rich course of copper ore, commence sinking and to extend the levels eastward on it.

of some part, but after character and, I believe, of fathom open out and a municipality for and Son, as in thorough pumping, dress is also the with a few re mines southward. Aberyst.

While engaged for the guide among the main is are destitute but so time in the opportunity for the there being less than one on terms that towards the great of mines sell of machinery and of hold at 1s. per which, as may be a purchaser deserved country to be bought in favor who has the comparatively with St. Day, Scotland.

YOUR CORRESPONDENT.

DEAR PRINCE, "Speculator," of the no dignified retirement would my Saintshs your Royal Highness cover even a bit of the rews, and wows Nanty-Glo. I days you will see Puff. No, no! the would do any good them.

FEB. 5.

SIR,—With reference to last week's I must candidly as Patrick Mine, embos, but my real biased readers: a respective state: the eastern and be Your correspondent part to rob our many veins of St. should p from as he states, from endeavour to colle mined in themselves that he has accum for sale, briefly dismis for main vein at St. orist. Simply by will find that not and have formerly portion of the me has already been o produced lead ore course, as is woked in the di I shall at all t which may tend ally, especially v acquainted with the benefit of al sertions made.

N.

SIR,—Your rec appreciation of a and that the already about 300 The company is n their profits. T and the finest pr 50,000£ a year in speaking to an ag Exchange gentle test of the prop part where the found, must ad found in three le the operations of chondrizing, ref shipping off the the prize of this in two or three n Collington, Feb.

SIR,—"Justice I am an advoc thoughts than a leave all he can, but he should no conversant with possessed of that agent. The mo beyond that of r ore in the rock perience the priv shade and driv experience to sa and raising the for dialling, it is, but it is a few years a Cury Brea—the reader read no time, but he is fully for he wa the processes th a man who ca to accounts, re other persons fo his ideas are, or is always open although not u case on the op



of some parties that this copper may give place to lead ore, but after mature consideration, seeing the great alteration in character and component parts of the lode in the two grants, I believe that the alteration will not take place for some time in the annals of mining has presented a more favourable opportunity for the investor to make a proper selection than the time being many mines, owing to the late depression, selling at less than one-half the value of the machinery erected thereon; shares in mines of the highest perspective value can be obtained in terms that must, ere the next six months, enhance in value. Such has been and is the apathy existing among the public in the great enterprise of the county that instances have occurred of mines selling at a market value of 600*l.* with 3000*l.* worth of machinery and the mine free from debt. In one instance shares were sold at 1*s.* per 6000*th.*; a week after a discovery was made which, as may be supposed, soon caused a rapid advance, and the purchaser deservedly reaps the reward. There are many in the county to be bought at a low price per share which will well repay the investor who has the heart to lay out a little money, and that, too, comparatively without any risk.

ABSALOM FRANCIS,  
Aberystwith, Feb. 6.

#### CORNISH MINING.

While endeavouring to point out fair and legitimate speculation for the guidance of the investor, it must not be forgotten that among the many mines at work in Cornwall there are several that are destitute of the smallest chance of becoming productive, and time in the annals of mining has presented a more favourable opportunity for the investor to make a proper selection than the time being many mines, owing to the late depression, selling at less than one-half the value of the machinery erected thereon; shares in mines of the highest perspective value can be obtained in terms that must, ere the next six months, enhance in value. Such has been and is the apathy existing among the public in the great enterprise of the county that instances have occurred of mines selling at a market value of 600*l.* with 3000*l.* worth of machinery and the mine free from debt. In one instance shares were sold at 1*s.* per 6000*th.*; a week after a discovery was made which, as may be supposed, soon caused a rapid advance, and the purchaser deservedly reaps the reward. There are many in the county to be bought at a low price per share which will well repay the investor who has the heart to lay out a little money, and that, too, comparatively without any risk.

CHAS. BAWDEN,  
St. Day, Scorrier, Cornwall, Feb. 7.

#### MINING ON HALKYN MOUNTAIN, FLINTSHIRE.

Mr. DEAR PRINCE PATRICK.—Why such a fuss? I am sure that "Speculator," or "Spectator" (for in your passion you do not seem sure of the name) never meant to disturb you in your present dignified retirement. I am not ashamed to be of your set, nor would my Saintship feel much scandal even though I should find your Royal Highness in the Rake vein. But rest assured I do not cover even a bit of your *solum*. You are rich, just broad enough in your veins, and work for me. I take more with those fine old fellows Nant-y-Glo, Halkyn, and Maeslyon. And some of these fine fellows will see what you will see with my connection with them. No, no! that's not in my way at all. But if a dozen of them would do any good to your poor fallen spirits I would gladly give them.

Your kind neighbour,  
SAINT PATRICK.

#### SAINT PATRICK MINE.

Sm.—With reference to your correspondent's remarks on this property, in last week's Journal, signed "A Prince Patrick Shareholder," I most candidly admit what would appear an error as to the St. Patrick Mine, embracing the Prince Patrick and South Prince Patrick sets, but my real meaning must have been obvious to all your unbiased readers—that it embraced the main lodes traversing their respective sets; and it is, moreover, adjoining them, and having the eastern and best lead-bearing portion of the mineral country. Your correspondent has no occasion to apprehend any desire on my part to rob our neighbours of their rights, but with regard to the main veins of St. Patrick I am rather surprised that your correspondent should presume to write on such matters on information, as he states, from miners in this district. Let him, or any one else, endeavour to collect scientific information from such sources (which must in themselves be at constant variance), and he will soon find that he has accumulated a mass of confused nonsense. I shall, therefore, briefly dismiss the part of the letter relating to the long-looked-for main vein at St. Patrick, and that it is by some not supposed to exist. Simply by a reference to the Geological Ordnance Map he will find that not only this but several main lodes have existed, and have formerly been very extensively worked, even in the western portion of the measures; and inasmuch as that the first main vein has already been cut at St. Patrick, has been worked upon, and has produced lead ore, though disordered in the junction of the main cross-course, as is frequently the case with the best veins ever worked in the district.

I shall at all times be ready and willing to elicit any information which may tend to the welfare and benefit of shareholders generally, especially when I am met in controversy by those practically acquainted with the subject, and who may feel inclined to write for the benefit of all interested. A very short time will verify the assertions made.

SPECULATOR.

#### NEW CONSOLS SILVER WORKS.

Sm.—Your readers cannot be aware of the fact, to judge from their appreciation of the shares, that this mine will be the prize of the year, and that the production of silver, arsenic, tin, and copper is already about 3000*l.* per month, and that it will be largely increased. The company is now putting up more furnaces, and will thus increase their profits. They have a surplus of several thousands of pounds, and the finest property in the county, and it is capable of giving 50,000*l.* a year in dividends if it be only properly managed. I was speaking to an agent, who had inspected the mine lately for a Stock Exchange gentleman, and he said that he was astonished at the extent of the property, and that the recent discovery in the western part, where the silver was worth double what had been hitherto found, must add greatly to the value of the mine, as it had been found in three levels not before worked. It is quite a sight to see the operations of getting the ore; of selecting, crushing, roasting, chloridising, refining, and packing up the arsenic for market, and shipping off the silver and copper. I predict that New Consols is the prize of this year, and that the value of the property will double in two or three months.

A RESIDENT NEAR THE WORKS.  
Callington, Feb. 3.

#### MINE AGENTS.

Sm.—"Justicia" in the Journal of Jan. 27 seems to assume that I am an advocate for ignorance. Nothing is further from my thoughts than approbation of ignorance. I say "let every miner learn all he can of geology, mineralogy, assaying, surveying, &c.," but he should not be kept out of a mine agency because he is not conversant with all these sciences, nor any one of them, if he is possessed of that amount of knowledge which is indispensable in an agent. The most important items of knowledge for a mine agent beyond that of reading and writing is a knowledge of the different ores in the rock; he should also be able to judge from actual experience the price which should be paid per fathom for sinking shafts and driving cross-cuts; he should also be qualified from like experience to say what tribute should be paid to men for breaking and mining the ore, also to direct the metallurgical processes. As for dialling, it is not indispensable, because surveyors are always near, but it is an art easily acquired.

A few years ago—before Capt. Teague took the management of Carr Brea—the principal agent, put there by Capt. Lyle, could neither read nor write. I would not put such a one in such a position, but he is said to have conducted the operations very successfully, for he was a good practical miner, knew minerals well, and the processes they should undergo to make them marketable. But a man who can neither read nor write is a very helpless person as to accounts, reports, and correspondence, for he must depend on other persons for help without being able himself to judge whether his ideas are, or are not, placed on paper according to his wish. He is always open to imposition. The agents we have in our mines, although not up in the sciences named by "Justicia," appear to carry on the operations with all the ability requisite for the pur-

pose. I do not believe that "Justicia" can supply us with men who could do the work more effectually than our agents do it. The Germans profess, I am told, superiority to our agents, but from observations taken by an intelligent Cornish agent, Capt. J. Vivian, when he was in Germany they are, in his opinion, far behind our agents in some respects in the practice of mining.

"Justicia" says that "the mines put forward by me as instances of good management without science are extraordinary instances of rich mines." Who discovered the riches? Not men of science, and if the riches were not there men of science could not find them. As I said in a previous letter as to the sciences bearing upon mining, the young men in our mining districts are studying them, and conducting experiments in chemistry, &c., so that to some extent the ideal of a model agent, according to "Justicia," will be realised. Meanwhile we have no reason to complain of our present agents.

Truro City, Feb. 7.

R. S.

#### WHEEL PEEVOR ACCOUNTS.

Sm.—How long will the executive of this mine continue their fair promises to pay cost, yet at every meeting, according to their own statement of accounts, show a heavy loss? During the past twelve months promises have been freely made and assurances given by both purser and manager that the mine would more than meet cost in the coming 16 weeks. But what is the result? Although the accounts are rendered in an unsatisfactory manner, at the last meeting, held on Jan. 18, after transferring in labour cost, merchants' bills, bankers' interest, &c., to the amount of 916*l.* 18*s.*, to a suspense account, which the purser designates "New Stamps Account," they show a loss of 512*l.* 2*s.* 4*d.*, whereas the real loss is 1474*l.* 2*s.* 4*d.*. At the meeting held in September last credit was taken in the accounts for 23 tons of tin, at 27*l.* per ton—962*l.*—which should have been deducted in the accounts submitted on Jan. 18. Instead of this, a sum of 916*l.* 18*s.* has been transferred to the "New Stamps Account," which has already reached the enormous total of 2549*l.*, and for 32 heads only.

This "New Stamps Account" is now the depot for heavy labour cost and extra merchants' bills. Of course, this cannot last much longer, but while it does it gives an opportunity to play with figures. In my opinion the transfer of 916*l.* to the "New Stamps Account" is a very doubtful matter, and ought to be investigated. If the accounts were rendered in the ordinary manner a loss of 2391*l.* 9*s.* 4*d.* would be shown on the 16 weeks' working. Some time since the present management took to themselves great credit for reducing the merchants' bills to about 700*l.*; they now reach the prodigious sum of 1538*l.* 12*s.* 9*d.*. Under the late management there was no transfer of either labour cost or merchants' bills to "New Pitwork Account," although 30 fms. had been fixed and 20 fms. left upon the mine, but every farthing appeared in the cost-sheet as ordinary cost.

What a change a few months has made in the statement of accounts! Since then calls amounting to more than 20*s.* per share have been made, and the mine is now full of water, and about 3000*l.* in debt. This does not look very much like paying cost. What reason can be assigned for not deducting the 23 tons of tin credited from the 59 tons sold in the usual way?

Here again, as is usual, a committee is worse than nothing, or they would have looked into this matter. It was reported a few days since that 1 ton of tin per day was being returned, but, according to the statement submitted to the meeting, 59 tons of tin were sold, and, deducting therefrom the 26 tons previously credited, we have 33 tons as the result of 16 weeks' working, or about 8 tons per month, which gives about 3 tons per month below the average of the last two years.—*Redruth, Feb. 6.*

A. T. JAMES.

[For remainder of Original Correspondence, see to-day's Journal.]

#### THE WILD DUCK, OR SPORTSMAN'S ARMS.

"Well, I hope so," says Jan Temby, "that you have all had a Merry Xmas, and lots of kerling-singing, with all the other good old customs." "Why, considering the times," says Jan Jewell, "I think we have all done very well; but here is Old Tom, and a don't look a bit fatter for Xmas or anything else, and seem to me the more the old chap do eat and drink the wisther a do look; a ees hide bound I reckon." "No I arn't," says Old Tom, "and if you will hark to me a bit till I have told ee about my plan for dressing tin without waste I'm sure you'll say I'm a brave clever old fellow." "That's right," says Jenny Dowa, "throw to un, Old Tom." "Well, now look here, eese," says Old Tom, "you all know, do whatever you can, you can't stop the tin from washing away. You may have buddles round or long, strakes, frames, keeves, slime pits, catch pits—acres big—you may stop the tinstuff fine or coarse, and still the best—the florer, the very cream of the tin—will swim away so light as feathers, and all the great managers, and cap'ns, and big belly cap'n dressers, and great inspectors, and flossers can't stop un. Now, men, you know what I say is trew." "So it ees," says Jan Temby, "and of thee cust stop the tin from swemmen away thee wust be the grandest man that ever lived. They say that Solomon was the wisest man, but he would be a fool to thee, Old Tom, of thee cust stop the tin from swemmen away, and I don't think Solomon know'd tin from Wolfram." "Well, now then, back to my plan, will ee; and then say what you think of un. You have all of ee," says Old Tom, "sen women winden (winnowing) corn." "Jas, ee, to be sure. We've all sen that." "Well, of the wind as too hard 'twill blow away the corn with the chaff, but off the wind is exactly the grain will drop down clean, and not a bit of durt or chaff weth ee. Now, I mit a traveller the other day from up the country, and a told me a worked in a mill for grenden flents. 'Why, what sort of a mill must a be,' says I, 'to grend flents?' 'I'll tell ee,' says he. And make it plain that flents could be ground quite easy as fine as best bag flour. 'Well,' says I, 'of a ees like that there I reckon I know what to do; and if flents can be ground so fine as bag flour I can grend the hardest tin capel that ever come out of any bal so fine as flour, and as a do come through the sieves I will have a blast of wind by a little machine to suit the stuff, and the poor shall be blowed to one side, and the clean tin, being heavier than waste, will drop down quite clean, like corn after winden, and not a grain will be lost.' I know you'll all laff at my plan, but there ees, and I'm sure a will do." "I never hee'd or thot of such a plan," said Uncle Henry Trelyon, "but I should dearly love to see un tried by fair play, and I don't see a will cost more to grend stuff dry than to stomp un, and if tin can be dressed on Old Tom's plan a will be sure enuff a fine grend discovery, and we should all be so proud to see Old Tom riding in his carriage."

"At any rate," says Cousin Will, "the experiment will be worth trying, and I am sure you will all agree with me in thanking Old Tom for introducing the subject, for I do not think it is a matter to be laughed at." "But," says Jenny Dowa, "who will put down the money to try the dry dressing?" "Never mind," says Old Tom, "a will be tried some day, and I'll agree we will drink success to un, and wish all of us 'a happy new year,' for this eggy-hot is purty feeding stuff." "I have been thinking over the important subject," says Cousin Will, "of the cross-courses, great and small, intersecting all of our mining districts, and that if they were thoroughly explored at surface and underground vast discoveries of something richer than copper or tin would be made. Also, if all the mining districts, old and new, were carefully and thoroughly costeed, and the contents of the backs of all the lodes carefully examined and tested, that new ranges of mines as valuable and extensive as any at present known would be laid open; in fact, the mineral resources of Cornwall are inexhaustible, and by opening new districts no country in the world can compete with un. Amateur explorers, however, will not do. We must have men who know the run of lodes and cross-courses, who know true elvan from ironstone, and granite from moorstone. We must have men who know productive from unproductive rocks, and competent to assay the contents of new lodes; who have observed closely the difference in the rock which produced masses of mineral, and the rock which was barren. The explorers must be men of long experience, and of sound practical and scientific knowledge. Let such a system be properly carried out, and the discoveries and results will enable Cornwall and Cornish miners to laugh at foreign mines and foreign

awindles. Depend upon it there are by far a greater number of mines hidden in our county than are yet discovered, and we have nothing to fear if the men will work longer hours, and give up the 'tom-foolery' of 'four-week months,' for it is no benefit to anybody except 'monthly men.'—*Cousin Jack's Unpublished MSS.*

#### Meetings of Public Companies.

##### THE LOVELL MINING COMPANY.

A general meeting of adventurers was held at the London office, on Saturday, Feb. 3 (Mr. J. L. GODDARD in the chair), to pass the statement of accounts for 24 weeks ending Dec. 9, to receive the agent's report, to make a call, if necessary, and for the general purposes of the mine.

Mr. GRANVILLE SHARP (the secretary) read the notice calling the meeting. The accounts showed that the balance at the debit of the mine on Dec. 9 was 1839*l.* 11*s.* 2*d.*, after writing off 1092*l.* 1*s.* 7*d.* bad debt.

The committee, in their report, regretted that the accounts for the last 24 weeks showed so considerable a loss—the loss, however, was not altogether due to the 24 weeks' working, but was partly caused by the fact that the tin on the mine at the date of the last meeting, estimated in the accounts then furnished at 720*l.*, realised less than was expected. The extremely low price of tin that prevailed since the last meeting would in a great measure explain this, and also account for the deficiency. In the present accounts the committee had determined to credit nothing for tin upon the mine (although, of course, there was some), they had also determined to write off a bad debt and a sum due in respect of calls on shares which were held by the secretary as security for a debt, and had since been forfeited. Should there be any opportunity hereafter of recovering these amounts the committee will not fail to avail themselves of it, but they think the statement of accounts will be placed on a sounder basis by treating them as bad debts. The forfeited shares were at the disposal of the company, and the committee asked for power to sell them at their discretion.

Before the commencement of the proceedings the attention of the shareholders was called to a splendid specimen of stone from the mine, and Capt. BURGAX stated that it contained 10 cwt. of lead to a ton.

The CHAIRMAN then moved, without any observation, that the report and accounts be received and adopted, which was put and carried.

Captain Joseph Field and Edward Kemplthouse, after reporting on the operations at the mine, state that in the eastern part of the mine they have sunk two trial shafts on two separate lodes. In the north shaft the lode is regular and well-defined, producing saving work; they strongly recommend the sinking of this shaft vigorously, as it has every appearance of leading to something good, and that very shallow too. Seeing the rich points in the mine are all lying eastward, the committee deem it advisable to secure the adjoining eastern ground, and a twelve months' license has been given them on very advantageous terms. The mine is looking quite as well or rather better than at last meeting, and nothing but the low price of tin prevents them from making profits. The number of hand employed is—Tutwork, 41 men and three boys; wheeling and breaking rocks, one man and one boy; carpenter, one; smith, one; spalling, three men; ground surface work and brushing samples, one man; landing and filling, one man and one boy; at stamps, one man, 18 boys, four girls.

A letter was read from a shareholder, suggesting that during the low price of tin the number of men employed in the mine should be cut down to the lowest, and that they should simply go on developing the mine.

In reply to a remark Capt. BURGAX said that what they stood most in need of was a better state of trade in America, in order to bring about an advance in tin; whilst business was so very dull in America they could not expect much improvement here.

Capt. J. Burgax, in a special report upon the property, states that the system of working is most commendable. Judicious economy is observed in every department. Nothing more is required than a higher standard for tin to enable the adventurers to reap a high remuneration for their outlay. Considerable reserves exist which would produce handsome profits with a rise of 10*s.* per ton in the price of tin. The machinery, stamps, materials, and dressing floors, are efficient for all purposes, even for increased returns. The new shaft will open out the eastern ground as the sinking is proceeded with, &c. There are several shallow workings in which productive lodes have been discovered recently leading to the valley. The produce is from 5 to 6 tons of tin per month. The cost amounts to 25*s.* per month, showing that even at the present low price of tin that current expenses are nearly covered by returns; this can only be said of the principal mines of Cornwall.

Capt. BURGAX expressed a favourable opinion of the mine, and said they might look forward to the time when Hownam's shaft would become the engine-shaft and the main shaft.

The agents' report and Capt. Burgax's report were then adopted. A call of 8*s.* per share was then made, which will give 600*l.*; 5 per cent. discount will be allowed on all amounts paid before February 28.

The meeting was then made special, and the directors were authorised to dispose of the forfeited shares at their discretion.

The meeting then broke up.

##### LEVANT MINING COMPANY.

A general meeting of shareholders was held at the mine, St. Just, on Tuesday.—Mr. RICHARD WHITE, purser, in the chair.

The usual preliminaries having been disposed of, the accounts for the 16 weeks ending Dec. 16, of which the subjoined is an extract, were submitted:—Balance due from the adventurers at the last account, 909*l.* 4*s.* 10*d.*; labour cost (16 weeks), 3346*l.* 18*s.* 4*d.*; merchants' bills, 758*l.* 2*s.* 10*d.*; coals, 271*l.* 10*s.* 5*d.*; bank interest and commission, 82*l.* 9*s.* 5*d.*; rent, 23*l.* 14*s.*; total cost, 5391*l.* 19*s.* 1*d.*. Cr-dits: tin ores, 91 tons 8 cwt., sold for 3906*l.* 16*s.* (less due, 160*l.* 15*s.*), 3746*l.* 1*s.*; copper ores sold, less dues, 114 tons, 901*l.* 15*s.*; balance now due from the adventurers, 744*l.* 3*s.* 10*d.*; total, 5391*l.* 19*s.* 1*d.*. The result of this account shows that there is a surplus profit on the 16 weeks working of 165*l.* 1*s.*. The lords' dues are also deducted and debited in this account, amounting to over 200*l.*. Previous to this account the dues had been given up by the lords until the mine worked at a profit, consequently, compared with any preceding accounts held, in reckoning this amount of dues the mine actually yielded a surplus on the returns beyond the expenditure of 365*l.* on the 16 weeks working. The agent's report, presented at the meeting, stated that during the past four months they had sunk the skip-shaft 5 fms. below the 27*s.* fm. level, and the engine-shaft 4 fms. below this point; the lode in the skip-shaft is worth 5*s.* per fathom. The engine shaft lode is worth the same price for sinking—10*s.* per fathom. The 27*s.* east is worth 3*s.* per fathom. The 27*s.* south is valued at 5*s.* per fathom.—Submarine Engine-shaft on the North Lode: The 25*s.* east is valued at 7*s.* per fathom. A winze sinking here is worth 10*s.* per fathom. There are eight pitches working—two at 4*s.*, one at 12*s.*, one at 15*s.*, and one at 18*s.* in l.—Tribute: The 27*s.* east is worth 12*s.*. The 10*s.* east is worth 8*s.*. 5 sign stops here are worth an average of 5*s.* per fathom. Throughout the mine 45 pitches are working by 55 men and boys, at 4*s.*, to 18*s.* in the l. tribute, and 53 men and boys are on tutwork; total under ground 175 men and boys. The tin and copper raised the last four months has exceeded the estimate, and it is hoped to raise sufficient returns the next four months to meet the working costs of the mine.

After the accounts were audited and passed upwards of 40 shareholders and visitors sat down to an excellent dinner presided over by Mr. White.

The CHAIRMAN, after the usual loyal toasts were disposed of, proposed the health of the lords of the mine, observing how liberally they had behaved towards the adventurers in giving up all dues from the commencement till the mine was brought into a profitable state of working. He would now specially call on Mr. Trezize to respond for himself and the other lords, and he was quite pleased to see that gentleman this day present with them.

Mr. TREZIZE, in reply, said how glad he was to meet them on the present occasion, and see the mine brought into so very favourable and satisfactory a position. As far as he was personally concerned he would state he should be happy on all future occasions, when called upon, to aid the company in any way in his power. He sincerely hoped he might be able to attend the next meeting, and see the mine with even still more improved prospects.

Mr. FIELD proposed in high complimentary terms the health of the purser (Mr. White), and referred to the exertion and assiduity he had displayed in the discharge of his duties. There had been called upon Levant during the past five years about 22,000*l.*. This had all been collected without any recourse whatever to legal proceedings. This was highly satisfactory to them all. As far as the position of the mine was concerned, if only tin had been at fair remunerative rates there could have been good profits made. He was now in great hopes they should see higher rates for tin ere long.

Mr. WHITE, in reply, sincerely thanked Mr. Field and the adventurers present for their kindness as well as the confidence they exhibited towards him. He had certainly experienced great anxiety in the progress of the Levant. He much feared that the company which preceded the present one greatly neglected the tutwork operations, whereby the mine was worked to a very unsatisfactory position, consequently the shareholders had for some time a great outlay to encounter in order to bring their property into a profitable and healthy condition. He would observe their operations were carried on mostly on tribute, so the miners shared the risks with the adventurers in working for mineral. He considered their various explorations were opening up well, and that the prospects now are very encouraging.

The CHAIRMAN proposed the toast of "Success to the neighbouring mines." Mr. R. BOYSS, purser of Wheal Owles, in responding, stated that how he considered the position of Levant an enviable one compared to most others in the West, owing to its very easy water charges, and as far as its prospects and welfare is concerned, he congratulated the adventurers on their meeting this day to receive so encouraging a report of their property.

Mr. R. BOYSS, purser of North Levant, made some very interesting observations on the progress of his mine, and said how not very long ago some knowing critics spoke very disparagingly of the North Levant and its position, yet they had since sold 10,000*l.* worth of tin, and he believed from present appearance they should not be very long before they sold another such quantity. (Hear, hear.) He was very sanguine that before very long we should see a much better price for tin, and in reference to the Australian production, he had very recently heard from an excellent authority there that in every probability during this year there will be a great diminution of supplies from that part of the world. (Hear, hear.)

Mr. WELLINGTON, purser of Ding Dong Mine, gave some curious details of this



to be made, and Winchester is now engaged in proving them at Sawyer's Point, on the harbor of the same name. It has recently been observed at Sawyer's Point, on the harbor of the same name, that the property of the company is Stephens property. Mr. Gregson desired Mr. Mackenzie to send an agent to prove that locality, and in reporting the result Mr. Mackenzie stated he proceeded to examine the strata at Sawyer's Point, Fort Stephens, where he had found the otopteris, knorria, calamites, and phylloites, and to ascend the mountain to the summit, where he found the strata of the same age were not then surveyed across, and not extensive enough to survey necessary previous to his inspection; and he, therefore, cannot

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extended the gravel as well loosened up, and washes easily. There remains between the gravel thus loosened (on the rim) and the incline an area of drifted space the gravel over which is very hard, and thus far has baffled all my efforts except with the small blasts in drill holes. It must be that the drift mid-way between the bottom and the top of the hard portion of the bank, in which I intend to explode sufficient of the new powder to work both ways. After we get this bod removed we shall then then have access to gravel that has not been drifted, and our advance will be much more rapid. The weather for several days past has been



proved during the past fortnight, now yielding 3 tons of ore per fathom. In the 65, east of this shaft, the lode is large and strong, consisting chiefly of carbonate of lime and lead ore, of the latter producing 1 ton per fathom. The 65, west of San Carlos is easy for driving, but at present valueless. The lode in the 60, driving in the same direction, is hard and poor. The same lode east is without ore to value. The men are cross-cutting north at the 65, east of Judd's, where we expect to find more lode. The 45 contains good stones of ore in the back. Nothing has been met with in the 32 cross-cut, north of Judd's. Satisfactory progress is being made in sinking Taylor's shaft below the 90. Henry's shaft, below the 55, is very hard. The lode in Felipe's winze, sinking below the 55, yields  $\frac{1}{2}$  ton of ore per fathom.

**PONTGIBAUD (Silver Lead).**—Monthly Report: At Pranal Mine the sinking of St. George's shaft below the 90 metre level goes on regularly. The 90 metre level, north of the shaft, yields  $\frac{1}{2}$  ton of ore per current metre, and the same level south yields stones of ore. The 70 north yields  $\frac{1}{2}$  ton of ore per current metre. The winze behind this end has been holed to the rise from the level beneath, opening ground worth  $\frac{1}{2}$  ton per current metre. The rise in the 70 south is unproductive. A winze below this end yields a little saving work. The 50 south yields  $\frac{1}{2}$  ton of ore per metre, and the same level north of St. George's shaft yields a little saving work. La Brousse: The 140 metre level south yields  $\frac{1}{2}$  ton of ore per metre. The 120 south  $\frac{1}{2}$  ton per ton, and winze below  $\frac{1}{2}$  ton per metre. The 100 south is unproductive. The 80 south has entered kinder ground, but the lode yields no ore. The sinking of the new engine-shaft goes on favourably, and the cross-cut towards it at the different levels are being pushed on with all speed. —Mioche: The intermediate level north has entered firmer ground; lode poor. The ad level north is without change. —Roure: The cutting of the 150 p'at at the engine-shaft goes on regularly, and we hope to be able to resume the sinking by another month. The 170 cross-cut east continues in pretty favourable ground for progress. The 80 south, on Virginie's lode, is suspended, and the men put to strip down a part of the lode standing, which produces some good saving work. The same level north yields a little ore, and presents a kindly appearance. The 60 north of Brugere's winze has yielded a little ore of low quality, but is now poor. The 40 from the same point, in the same direction, is in a lode composed chiefly of red quartz, without ore to value. The rise in the back of the 60, on the caunter lode, is holed to the winze from the 40, laying open tribute ground in the bottom of the shaft. The adit north, on Virginie's lode, yields stones of ore, and south from mill shaft  $\frac{1}{2}$  ton of ore per current metre. —Surface: During the past month the weather has continued favourable, enabling us to carry on our works without interruption. Our samplings have amounted to 239 tons.

**PESTARENA UNITED.**—The following are the returns from the mines for the month of January. From Val Topa district 210 ozs. 8 dwts. 5 grs. of gold, obtained from 348 metric tons of ore; yield per ton 12 dwts. 14 $\frac{1}{2}$  grs. From Pestarena district 110 ozs. 10 dwts. 15 grs. from 147 metric tons; yield per ton 14 dwts. 23 $\frac{1}{2}$  grs. Total from the two districts 320 ozs. 18 dwts. 20 grs. from 495 tons of ore amalgamated.

**Feb. 6.** District Val Topa: The western part of the quartz lode in the end of zero level, south of the 3rd cross-cut, is yielding at present about 8 tons of ore per fathom, worth 1 oz. of gold per ton. The lode in the intermediate level, below zero, is yielding 10 tons per fathom of the estimated average yield of 15 dwts. of gold per ton. A small mill trial recently gave 1 oz. 10 dwts. 1 gr. of sponge gold per ton, and an assay of the same 1 oz. 3 dwts. 4 $\frac{1}{2}$  grs. of fine gold per ton. The lode in the bottom, behind this end, continues to yield 12 dwts. per fathom, at 15 dwts. per ton. The lode in the back of No. 1 level, north, of winze, yields 4 tons, at 9 dwts. per ton. The lode in the back of No. 2, south of 1st cross-cut west, is yielding 5 tons at 9 dwts. per ton; and No. 2, 9 tons, at 8 dwts. per ton. —Greet Quartz Lode: In the new drive in the north end of the ground, 20 metres above No. 2 level, the lode is 3 ft. wide, mostly of quartz, and poor. The lode in the bottom of No. 2, on this lode, north of winze, yield 10 tons per fathom, worth 7 dwts. per ton. In an intermediate level, under No. 2, south of winze, we are cross-cutting through this lode; as far as seen at this point the lode is 9 ft. wide, of quartz, with pyrites, worth as per small mill trial 17 dwts. 8 grs. of sponge gold per ton of ore; a sample of the same gave by assay 15 dwts. 4 $\frac{1}{2}$  grs. of fine gold per ton. —Marmo Rosso Lode: In the end south of 1st cross-cut the lode is about 18 in. wide, mostly quartz, which gave by mill trial 1 dt. 20 $\frac{1}{2}$  grs. of sponge gold per ton, and the sample by assay 1 dt. 7 $\frac{1}{2}$  grs. of fine gold per ton. We are looking forth to an improvement in this end as we advance south.

**Flat and New Lode:** The drive in north end of slope, under No. 2 level, is producing 6 tons per fathom, worth 9 dwts. per ton. In the drive in south end we estimate the lode to yield at present 10 tons per fathom, worth 13 dwts. per ton. The lode in east side of intermediate drive, under No. 2 level, on the turn of the flat lode, is very much fallen off, now producing 4 tons of about 7-dwt. ore per fathom. —Lode and Branches East of New Lode: The lode in back, south of 4th cross-cut, will produce 3 tons of ore per fathom, worth on an average 1 oz. of gold per ton; a picked sample from this slope gave by mill trial 3 ozs. 18 dwts. of sponge gold per ton, and the assay of a sample from the same slope gave 2 ozs. 16 dwts. 12 $\frac{1}{2}$  grs. of fine gold per ton. In the rise behind this slope the lode at present yields 1 $\frac{1}{2}$  ton per fathom, worth 8 dwts. per ton; this rise is now suspended, as we are not men for stopping. The rise in back of No. 3 level, on branch of new lode, is poor, and the men have been removed to slope in the south end of same, where the lode will yield 7 tons of ore per fathom, worth 10 dwts. of gold per ton. In the end north of the cross-cut, on the lode, the lode is 2 ft. wide, of quartz, mixed up with the mountain; at present not to value. No. 4 end north is suspended. —District of Pestarena: The lode in the incline-shaft is yielding 7 tons of ore per fathom, worth as per mill trial 15 dwts. per ton. In the 90 north the lode yields 1 ton per fathom, worth 11 dwts. 14 grs. per ton. In the 90 north the lode is producing at present 1 ton per fathom, worth 1 oz. 3 dwts. per ton. In the 90 driving north we have a considerable improvement, the lode producing 5 tons per fathom, worth 1 oz. per ton. The 55 cross-cut westward is being continued. The lode in the 55 north is small. No. 2 lode, in the end of the 33 ft. level, is yielding 1 $\frac{1}{2}$  ton per fathom, worth 1 oz. 8 dwts. 7 grs. per ton. —Acquavite Department: In the 46 south the lode is worth 2 tons per fathom, at 1 oz. per ton. In the 33 north the lode is giving in the present end 1 ton per fathom, at 15 dwts. of gold per ton. All our machinery is in good condition. In consequence of the ice in Anza river, the water has been abated, and at the same time we are able to work only five mills, and are afraid that in the course of a few days we shall be obliged to suspend the milling until a more favourable time, which will be some time in March.

### Registration of New Companies.

The following joint-stock companies have been duly registered:—

**PERKINS BEACH LEAD MINE (Limited).**—Capital 30,000*l.*, in 1*l.* shares. To acquire the Perkins Beach Mines, in the parish of Worthen, Salop. The subscribers (who take 100 shares each) are—G. H. Brown, 52, Boyson-road, Camberwell, clerk; C. F. Ingram, Howard House, Stoke Newington, shorthand writer; H. Oldham, 38, Frederick-street, Hampstead, agent; E. P. Cornish, Preston, 29, Lamb's Conduit-street, clerk; Walter Fry, Mitham, merchant; J. J. Merst, Auckland-road, New Wandsworth; R. C. Shurland, 59, Graham-street, Dalston, clerk. This company is registered without articles.

**BRISTOL FIRE-CLAY COMPANY (Limited).**—Capital 10,000*l.*, in 50*l.* shares. To acquire the right to mine for fire and other clay, coal, ironstone, and other minerals underlain in the parish of St. George, Gloucestershire, belonging to the Ecclesiastical Commissioners of England. The subscribers are—H. C. Burge, Osborn House, Cotham, Bristol, gentleman; W. M. S. Hale, Wenden, near Bishop Auckland, mining engineer; J. J. H. White, St. Andrew's Chambers, Leeds; J. R. Burge, Cotham, accountant; 20; C. H. Heart, Cotham, coal merchant; 10; A. H. Burge, Osborn House, Cotham, accountant; George Gay, Cotham, builder, 16.

**MARSTON LEAD MINING COMPANY (Limited).**—Capital 12,000*l.*, in 50*l.* shares. To acquire and work a lead mine, the locality of which is not mentioned. The subscribers (who take one share each) are—William Bowman, Middleton-by-Toulre, Bakewell, farmer; George Bacon, Bakewell, agent; E. P. Cornish, Bakewell, mining engineer; H. D. Dwyer, 8, Cornhill, broker; George Ross, 87, Cornhill, broker; Alexander Kerly, 14, Great Winchester-street; F. T. Powell, 73, Old Broad-street, accountant. This company is registered without articles.

**PHOTOGRAPHIC ARTISTS' CO-OPERATIVE SUPPLY ASSOCIATION (Limited).**—Capital 50,000*l.*, in 10*l.* shares. To deal in photographic appliances, &c. The subscribers are—Crew Alton, 95, Belgrave-road, 10; H. Steel, 4, New-square, Lincoln's Inn, 5; E. Ellerman, 14, Cambridge-street, W.; 5; A. Brant, 37, Palace Grove, Bromley, 1; E. Huntley, Richmond, 2; F. Du Pre Thornton, 31, Victoria-street; Walter M. (son), 45, St. James's-street.

**COLD STORAGE WHARF (Limited).**—Capital 100,000*l.*, in 5*l.* shares. To carry on business as wharfingers and lightermen, and to purchase the interest of Mr. Daniel Tallerman in certain wharves in Upper Thames-street. The subscribers are—Daniel Tallerman, 40, Beresford-road, N., 100; R. Wallace, 5, Paper Buildings, Temple, 10; James Doyle, 40, New Bond-street, 40; W. H. Trezo, 184, Bishopgate-street, 20; John Bell, 5, East India Avenue, 20; T. J. Redgate, 13, George-street, Mansion House, 20; Alfred Brock, 23, Hackney-road, 10; Charles Clark, Windsor Chambers, Great St. Helen's, 20; and A. E. Elder, 7, Great St. Helen's, 100.

**MANCHESTER AND DISTRICT SCHOLASTIC TRADING COMPANY (Limited).**—Capital 10,000*l.*, in 1*l.* shares. To deal in stationery, books, &c. The subscribers are—10,000*l.*, in 5*l.* shares. To purchase the copyright of the Public Ledger, and to carry on business as printers, &c. The subscribers are—John Terrell, East End, Finchley, 25; J. Walton, Rotherhithe, Chesham, 25; Arthur Joseph, 5, St. Stephen's-terrace, Hammersmith, 25; Walter Joseph, 27, Lancaster-road, 20; H. R. Gill, 32, Cheap-side; G. L. Lyon, 105, Bishopgate-street; Lucien Wolf, East End, Finchley, 10.

**WEST LANCASHIRE COLLIERIES AND FIRECLAY WORKS (Limited).**—Capital 60,000*l.*, in 100*l.* shares. To carry out an agreement for the purchase of the collieries, mines, and property known as the Royal Colliery and Firebrick Works, lately belonging to John Cross, situate at Thatch Heath, near St. Helen's, for the sum of 15,000*l.*; also to acquire the colliery and estate known as Giller's Green Colliery, at Eccleston, near St. Helen's, for the like sum. The subscribers (who take one share each) are—Joseph Hartley, 40, Burgess-street, Ormskirk, agent; Peter Palmer, Ormskirk, architect; John Cross, Edgell, Liverpool, colliery proprietor; W. Parr, Ormskirk, solicitor; William Humphreys, 57, St. John's-road, Bootle; Joseph Palmer, Ormskirk, bank manager; J. B. Squire, Talbot Villa, Southport, railway contractor. The directors are Messrs. Joseph Hartley and Peter Palmer; the first-named to be managing director. The qualification is 10 shares.

**ORMSKIRK COTTON SPINNING AND MANUFACTURING COMPANY (Limited).**—Capital 50,000*l.*, in 5*l.* shares. To erect a cotton mill at Bickerstaffe, Lancashire. The subscribers are—Mark Garfield, Middleton-road, Ormskirk, 50; T. Alby, Ormskirk, 100; J. Blundell, Ormskirk, 100; P. Palmer, Ormskirk, 100; William Leak Hutton, Ormskirk, 100; J. Martin, Ormskirk, 50; John Stow, Wigan, 30.

**CHEW-MOOR MILL COMPANY (Limited).**—Capital 20,000*l.*, in 10*l.* shares. To acquire a cotton mill at Chew Moor, Laskock, Lancashire. The subscribers (who take one share each) are—Alexander Giff, Lower Broughton; C. H. Osborn, Burton-lane, Withington; S. C. McDaniel, Hulme; W. Leader, Chesham; J. B. Baker, Eccles-new-road, Salford; Cyrus Alnsworth, Chorlton-on-Medlock; W. Worsley, Stalybridge.

**PENDER'S GRATE COMPANY (Limited).**—Capital 50,000*l.*, in 5*l.* shares. To acquire and work letters patent for improved fire-places, &c.

**METROPOLITAN EXCHANGE COMPANY (Limited).**—Capital 10,000*l.*, in 10*l.* shares. To carry on business as stock and share dealers, and to make advances upon various securities, &c. The subscribers (who take one share each) are—W. R. Jackson, 27, Midway Chambers, Bishopgate-street; E. A. Colman, 27, Midway Chambers; E. Norton, 5 $\frac{1}{2}$ , Arthur-street East; James Irving, 45, Edward-

quare, Kennington; T. C. Pocock, 9, Mining-lane; J. N. Rigg, 81, Gracechurch-street; E. L. Newnegen, Fenchurch-street.

**PROVIDENT LIFE OFFICE.**—The report for the year just ended states that the number of new policies issued was 1006, and the amount thus assured was 451,650*l.*, producing in annual premiums 14,557*l.*. The annual income has been increased to 252,614*l.*. The claims, amounting only to 124,247*l.*, being 83,955*l.* less than the payment for 1875, and 54,743*l.* under the past seven years average. It is further stated that, owing partly to the small amount paid for claims, and partly to the largely augmented income, the accumulated funds have been increased by the sum of 117,803*l.*. At the close of the year the invested capital was 1,996,622*l.*, and the average rate realised was 4*l.* 9*l.* 9*l.* per cent.

**THE NATIONAL PROVIDENT INSTITUTION.**—The directors' report that for the past year they issued 961 policies, insuring 430,935*l.*, and yielding in new premiums 14,430*l.*. Claims were paid representing 428 policies executed on 339 lives, and amounting to the sum of 243,571*l.*, including bonuses. In addition, 6576*l.* was paid on policies running out at a given age of the insured. The accounts for the year show a balance of receipts over payments of 102,228*l.*, which, added to the accumulated fund, makes it 3,520,407*l.*. Expenses of management, including 8114*l.* paid as commission, came to 5 $\frac{1}{2}$  per cent. of the gross receipts, which were 388,850*l.*.

### THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports of coals into the port and district of London by sea, railway, and canal during Jan., 1877:

By Sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Newcastle	225	190,289	London & North-Western	84,574
Seaham	42	19,151	Great Northern	81,606
Sunderland	124	92,854	Great Western	73,008
Middlesbrough	5	1,949	Midland	118,091
Hartlepool	90	29,709	Great Eastern	47,596
Scotch	23	11,010	South-Western	3,799
Welsh	4	956	South-Eastern	1,359
Yorkshire	18	1,606	Grand Junction Canal	420
Small coal	1	400		
Cinders	3	1,302		
Colonial	1	400		

Total	557	352,451	Total	420,455
Imports—Jan. 1876	493	329,493	Imports during Jan. 1876	466,076

**Comparative Statement, 1876 and 1877.**

By Sea.	Ships.	Tons.	By Railway and Canal.	Tons.
Jan. 1 to Jan. 31, 1877	557	352,451	Jan. 1 to Jan. 31, 1876	416,076
Jan. 1 to Jan. 31, 1876	493	329,493	Jan. 1 to Jan. 31, 1877	420,455

Increase ..... 64 ..... 22,958 ..... Decrease ..... 25,821

Subjoined is an export list, showing the distribution of coal imported into the port or district of London by sea, rail, and canal, and afterwards exported coastwise or to foreign parts, or sent beyond limits of the London district by rail or inland navigation during January, 1877:—

Railway-borne coal passing "in transitu" through district. Tons	64,458
Sea-borne coal exported to British possessions, or to foreign parts, or to the coast	58,602
Ditto, sent beyond limits by railway	8,670
Ditto, by canal and inland navigation	3,511
Railway-borne coal exported to British possessions, or to foreign parts, or to the coast	43,193
Ditto, by rail beyond district	40
Ditto, by canal and inland navigation	229
Sea-borne coal brought into port and exported in same ships	1,811
Total quantity of coal conveyed beyond limits of coal duty district during January, 1877	180,820
Ditto, January, 1876	172,985

**Comparative Statement, 1876 and 1877.**

Total distribution of coal from 1st to 31st January, 1877	180,820
Ditto 1st to 31st January, 1876	172,985
Increase in the present year	7,835

**General Statement, 1876 and 1877.**

Decrease in coals imported by railway and canal during the present year	25,821
Less increase in ditto by sea	22,958
Add increase in exports	7,835
Total decrease in trade within London district during present year	19,198

**PRESENTATION TO MR. GREENWELL.**—At Manchester, on Tuesday, a handsome silver-gilt centre bowl, with claret and champagne cups, subscribed for by gentlemen connected with the Lancashire, Cheshire, and North Staffordshire collieries, and valued at over 200 guineas, was presented, on his retirement from the district, to Mr. G. C. GREENWELL, C.E., F.G.S., in recognition of his eminent abilities and the great services he rendered to the coal trade generally. Nearly 40 gentlemen attended the presentation, the Chairman (Mr. Persday Smith) being supported by Messrs. Thomas Knowles, M.P., and Alfred Hewlett, whilst Mr. W. T. Craig occupied the vice-chair.

**BREACH OF THE MINES REGULATION ACT.**—At Huddersfield, on Tuesday, Benjamin Lochwood, proprietor of the Shuttle Eys Colliery, Grange Moor, was charged, under the 26th section of the Coal Mines Regulation Act, with not having a manager for his colliery, and with neglecting to notify the name of the manager to the Inspector for the district. —Mr. Warrell, the Inspector who prosecuted, states that the Act exempted collieries from having managers if there were fewer than 30 persons employed underground, and if there was a less output than 25 tons daily. On Dec. 5 Inspector Gerard went to the colliery, and from an examination of the books he found that there were over 70 persons employed in the colliery, and there was more than 25 tons of a daily output. —The Bench said the offence was a serious one, and the defendant would have to pay 20*l.* and the expenses.

### THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

Since my last report (Jan. 25) the market has been inactive, and is especially so at present. The tendency of prices has, therefore, been downwards.

In shares of iron and coal concerns Cairnbar is the only exception to the downward movement, being in demand at an advance of 5*l.* per share, but Bolckow, Vaughan, and A. and Fife Coal are each 10*l.* lower. Benhar (new), 6*l.* 3*l.* 3*l.*. Monkland, also Nant-y-Glo and Blania (preferred) each 5*l.*. Monkland (preference) and Scottish Australian each 2*l.* 6*l.*, also Lechoire and Capledrae 1*l.* 3*l.*. The Oaks Pits Colliery are unable to declare any dividend at this balance; six months ago 2*l.* 3*l.* per 5*l.* fully-paid share was the rate. Andrew Knowles and Sons are at 19*l.* to 20*l.*. Antrim Iron Ore, A. 37*l.* 6*l.*; ditto, P. 32*l.* 6*l.*. Cardiff and Swar sea, 35*l.*, buyers. Skerme Iron, 6*l.*, buyers. West Cumberland, 9*l.* to 10*l.*.

In shares of foreign copper concerns Tharsis have fallen 40*l.*; ditto (new), 10*l.*. Huntington 6*l.*, and Canadian Pyrites 1*l.*, while Rio Tinto 5 per cent. bonds have been dealt in at 64, an advance of 50*l.* on last business; and Russia 5*l.* higher. Panulillo are likewise 5*l.* better, the net profit for six months ending December 31 last being 10,000*l.*.

In shares of home mines, Glasgow Caradon have fallen 9*l.*, but the new shares are 6*l.* better. The Mwyndy Company's meeting is to be held on the 14th inst. Asheton off at 30*l.*. Bampfyde, 12*l.* 6*l.*. Gunnislake (Clitters), 35*l.*. Glyn, 40*l.* to 45*l.*. Killfirth, 20*l.*. Leadhills, 6 to 6*l.*. Parys Mountain, 11*l.* to 12*l.*. Penstruthal, 11*l.* to 12*l.*. Pennerley, 15*l.* to 17*l.*. 6*l.*. Roman Gravel, 13*l.* to 14*l.*. South Cumburrow, 6 to 6*l.*. Tankerville, 8*l.* to 8*l.*. Van Consoles, 40*l.* to 45*l.*. West Tankerville, 32*l.* 6*l.* to 37*l.* 6*l.*. Whell Agar, 67*l.* 6*l.*.

In shares of gold and silver mines, Last Chance are advanced 5*l.*, and Richmonds reduced 3*l.* 9*l.*. This week's run on the latter is 350,000*l.*. Chontales are 8*l.*, buyers. Eberhardt and Aurora, 10*l.*. Pestarena United (Gold), 3*l.* 9*l.* to 5*l.*. South Aurora, 5*l.*, buyers. St. John del Rey, 310 to 320.

In shares of oil concerns Uphall are 10*l.* lower, but Young's Paraffin 2*l.* 6*l.* higher.

In shares of miscellaneous companies the only movement is a reduction of 5*l.* on London and Glasgow Engineering, &c., and some

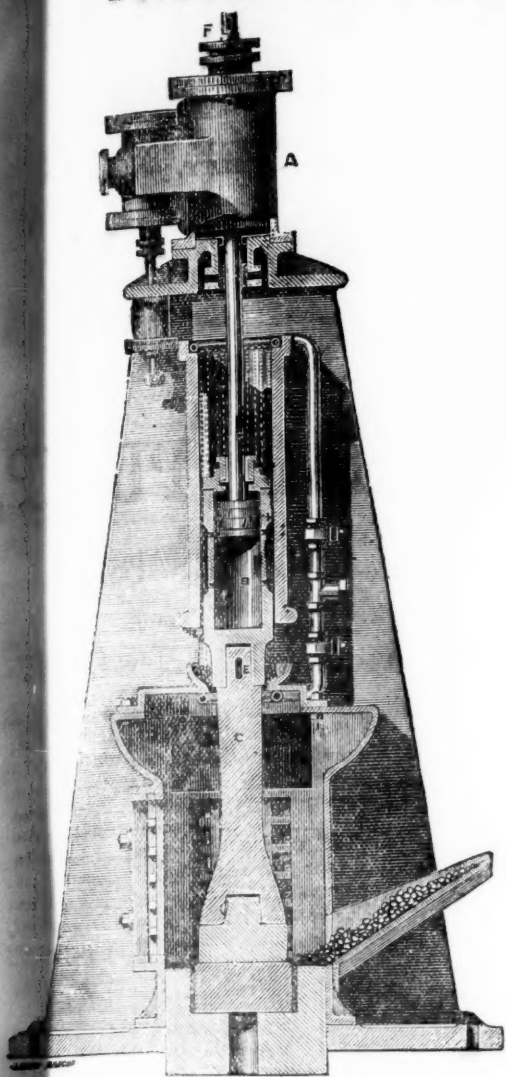
business has been done in Scottish Wagon, which are now ex div. Langdale's Chemical are at 77*l.* 6*l.* to 80*l.*; New 80*l.* dia, rather sellers.

Subjoined are this week's quotations, &c., of mining and metal shares on the Scotch Stock Exchange.

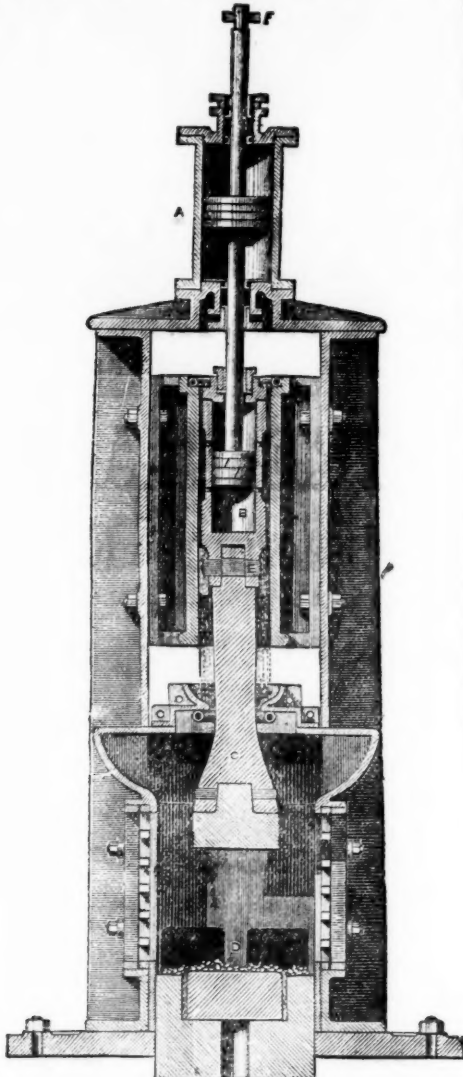
Capital.		Dividends.		Rate per cent.		Description of shares.	
Per share.	Paid up.	Previous.	Last.	per annu.			
£10	£5	£ 8½	£ 8½			COAL, IRON, STEEL.	
10	10	9	6	...	...	Arnstad Coal (Limited)	...
10	10	9	6	...	...	Benhar Coal (Limited)	...
10	8	9	6	...	...	Ditto	...
100	45	35s. 11d.	18s. 11d.	...	...	Bolckow, Vaughan, and Co. (Lim.)	...
10	10	10	10	...	...	Cairnbar Gas Coal (Limited)	...
10	10	10	10	...	...	Chillington Iron (Limited)	...
32	29	nil	nil	...	...	Ebbw Vale Steel, Iron, and Coal (Lim.)	...
10	5	nil	nil	...	...	Fife Coal (Limited)	...
10	10	—	—	...	...	Glasgow Port Washington Iron & Coal (Lim.)	...
10	10	—	—	...	...	Ditto Prepaid	...
10	10	—	—	...	...	Lochore and Capletrae (Limited)	...
10	10	nil	nil	...	...	Marbella Iron Ore (Limited)	...
10	10	nil	nil	...	...	Monkland Iron and Coal (Limited)	...
10	10	—	—	...	...	Ditto Guaranteed Preference	...
100	100	nil	nil	...	...	Nant-y-Glo & Blaenau Ironworks pref. (L)	...
6	5½	nil	nil	...	...	Ormos and Cleland Iron and Coal (Lim.)	...
1	1	12½	17½	...	...	Scottish Australian Mining (Limited)	...
1	1	12½	17½	...	...	Ditto New	...
Stock	100	5	nil	...	...	Shotts Iron	...
COPPER, SULPHUR, TIN.							
4	4	—	—	...	...	Canadian Copper Pyrites (Limited)	...
10	7	20s	20s	...	...	Cape Copper (Limited)	...
1	1	15	15	...	...	Glasgow Caradon Copper Mining (Lim.)	...
1	15s.	15	15	...	...	Ditto New	...
1	1	15	15	...	...	Huntington Copper and Sulphur (Lim.)	...
25s.	23s.	—	—	...	...	Kakunda Mining (Limited)	...
4	4	—	—	...	...	Panulillo Copper (Limited)	...
10	10	61	61	...	...	Rio Tinto (Limited)	...
20	20	—	7	...	...	Ditto 7 per cent. Mortgage Bonds	...
100	100	—	5	...	...	Do. 5 p.c. Mor. Deb. (Sp. Con. Deb.)	...
10	10	nil	nil	...	...	Russian Copper (Limited)	...
10	10	25	25½	...	...	Tharsis Copper and Sulphur (Limited)	...
10	7	25	25½	...	...	Ditto New	...
1	1	—	—	...	...	York Peninsula Mining (Limited)	...
1	1	—	—	...	...	Ditto, 15 per cent. Guaranteed Pref.	...
GOLD, SILVER.							
1	1	—	5	...	...	Australian Mines Investment (Limited)	...
20	20	—	—	...	...	Emma Silver Mining (Limited)	...
10	10	—	—	...	...	Flagstaff Silver Mining (Limited)	...
5	5	—	—	...	...	Last Chance Silver Mining (Limited)	...
5	5	7s. 6d.	7s. 6d.	...	...	Richmond Mining (Limited)	...



## PNEUMATIC STAMPS AND HAMMERS.



PNEUMATIC STAMPS AND HAMMERS.



Or from the "quickest" to the "slowest" speed; and from its flexibility produces the cleanest possible work. The extraordinary weight of the blow in these hammers, and the manner in which it can be moderated at will, is due to the intervention of an air or pneumatic cylinder between the crank pin and the tapp; the air, admitting itself through central holes in this cylinder, becomes alternately compressed by reciprocation, and forms an elastic spring of any required force. Every hammer is guaranteed, and it is estimated that the prices will range about 30 per cent. below steam-hammers of the same capacity, independent of the great economy of working them. Perhaps the greatest recommendation of the new hammer is that there is really nothing to get out of order, and that there is just sufficient life in the blow to produce clean work without the smallest waste of power.

**CORNISH PUMPING ENGINES.**—The number of pumping-engines reported for December is 17. They have consumed 2358 tons of coal, and lifted 18,500,000 tons of water 10 fms. high. The average duty of the whole is, therefore, 53,000,000 lbs., lifted 1 ft. high, by the consumption of 112 lbs. of coal. The following engines have exceeded the average duty:—

Dolcoath—85 in.	Millions	58.0
Melland—78 in.		58.8
West Tolgus—Richard's 70 in.		61.1
West Wheal Seton—Harvey's 85 in.		58.9
West Wheal Seton—Rule's 70 in.		56.4
Wheal Unity Wood—70 in.		60.8

**HOLLOWAY'S PILLS.**—THE HOUR OF DANGER.—Disease commonly comes on with slight symptoms, which, when neglected, increase in extent, and gradually grow dangerous—a condition which betrays the grossest remissness—when these Pills, taken in accordance with their accompanying directions, would not only have checked, but conquered the incipient disorder. Patients daily forward details of the most remarkable and instructive cases in which timely attention to Holloway's advice has undoubtedly saved them from severe illness. These Pills act primarily on the digestive organs, which they stimulate when slow and imperfect; and, secondly, upon the blood, which is thoroughly purified by them, whence is derived the general tone they impart, and their power of subjugating hypochondriacism, dyspepsia, and nervous complaints.

## THE "CRANSTON" ROCK DRILL

SUITABLE FOR

QUARRYING, SINKING SHAFTS, SUBMARINE BLASTING, TUNNELLING, DRIVING ADITS,

Is the MOST SIMPLE and ECONOMICAL DRILL now in use.

BOILERS; AIR COMPRESSORS, worked by Hydraulic or Steam-power; STEEL for MINING DRILLS; PUMPING, and all other MINING MACHINERY supplied.

For Prices, Estimates, and other Particulars, apply to—

**J. G. CRANSTON, 22, GREY STREET, NEWCASTLE-ON-TYNE.**

Mr. TAIT, Manager, East Hetton Quarry Company's Works, Coxhoe, Durham, writing on May 12, 1876, says—"I have pleasure in testifying to the value of your Rock Drills. The two you supplied us with about six months ago are giving us entire satisfaction. The cost of drilling by machine is less THAN ONE-FOURTH THAT OF DRILLING BY HAND. By the use of the Drills we have been able very greatly to increase the out-put of stone without increasing the number of men employed."

**NICKFORD'S PATENT**  
FOR CONVEYING  
CHARGE IN



**SAFETY FUSE,**  
FIRE TO THE  
BLASTING ROCKS, &c.

**BENNETTS' SAFETY FUSE WORKS,**  
ROSKEAR, CAMBORNE, CORNWALL.

**BLASTING FUSE FOR MINING AND ENGINEERING PURPOSES,**

Suitable for wet or dry ground, and effective in Tropical or Polar Climates.

W. BENNETTS, having had many years experience as chief engineer with Messrs. Bickford, Smith, and Co., is now enabled to offer Fuse of every variety of his own manufacture, of best quality, and at moderate prices. Price Lists and Sample Cards may be had on application at the above address. LONDON OFFICE.—H. HUGHES, Esq., 42, GRACECHURCH STREET.

## PARR'S LIFE PILLS

**MAY BE USED WITH CONFIDENCE** by persons suffering from headache, indigestion, pain under the shoulder, bilious ailments, scorbutic complaints, affections of the nervous system, lowness of spirits, want of sleep, &c.—Sold by all chemists.

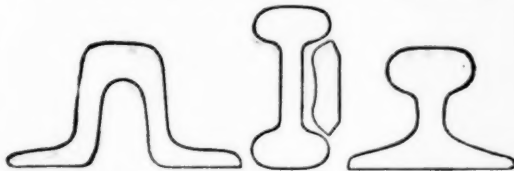
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FOR DYNAMITE, LITHOFRACTEUR, GUN COTTON, &c.,  
OF THE BEST QUALITY AND STRONGEST POWER,  
DELIVERED FREE IN LONDON.

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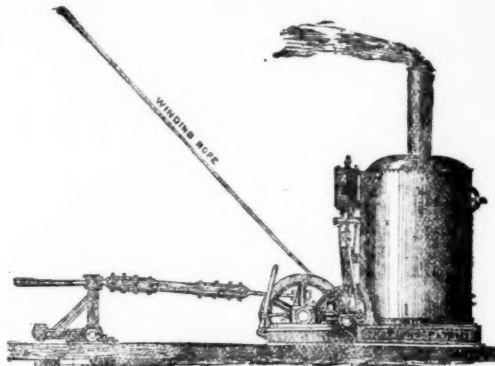
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**IRON AND STEEL RAILS**, of all sections, from 10 to 82 lbs. per yard, new, defective, or second-hand.  
POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS, AND SPIKES. LOCOMOTIVE ENGINES AND MACHINERY.  
MALLEABLE AND PIG-IRON OF ALL KINDS.  
Delivered at all Ports and Railway Stations in Great Britain.

Prize Medal—International Exhibition, 1862.



## CHAPLIN'S PATENT PORTABLE STEAM ENGINE

FOR PUMPING AND WINDING.  
SPECIALLY ADAPTED FOR PITS, QUARRIES, &c.  
SIMPLE and STRONG: require NO FOUNDATION or CHIMNEY STACK, and are EASILY ERECTED or REMOVED.  
Sizes, from 2 to 30-horse power.

Steam Cranes, 1½ to 30 tons, for railways, wharves, &c.; hoist, lower, and turn round in either direction by steam.

Stationary Engines, 1 to 30-horse power, with or without gearing.

Hoisting Engines, 2 to 30-horse power, with or without jib.

Contractors' Locomotives, 6 to 27-horse power. Traction Engines, 6 to 27-horse power.

Ships' Engines, for winding, cooking, and distilling, passed by H.M. Government for half water.

Steam Winches. Engines and Boilers for light screw and paddle steamers.

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CAST STEEL FOR PUNCHES, TAPS, and DIES  
TURNING TOOLS, CHISELS, &c.  
CAST STEEL PISTON RODS, CRANK PINS, CONNECTING RODS, STRAIGHT and CRANK AXLES, SHAFTS and

FORGINGS OF EVERY DESCRIPTION.

DOUBLE SHEAR STEEL. FILES MARKED  
BLISTER STEEL. T. TURTON  
SPRING STEEL. EDGE TOOLS MARKED  
GERMAN STEEL. WM. GREAVES & SON  
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Where the largest stock of steel, files, tools, &c., may be selected from.

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CORNISH PUMPING, WINDING, AND STAMPING ENGINES; STEAM CAPSTANS AND CRUSHERS; WATER-WHEELS; PUMP-WORK; SHOVELS, AND HAMMERED IRON FORGINGS OF EVERY DESCRIPTION.

Also of SPUR, MORTICE, MITRE, BEVEL, and other WHEELS, of any diameter up to 12 feet, made by Scott's Patent Moulding Machine, without the aid of patterns, and with an accuracy unattainable by any other means. MACHINERY or FOREIGN MINES carefully prepared. SECONDHAND MINING MACHINERY, in good condition, always on sale at moderate prices.

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MANUFACTURE RAILWAY WAGONS OF EVERY DESCRIPTION, for HIRE and SALE, by immediate or deferred payments. They have also wagons for hire capable of carrying 6, 8, and 10 tons, part of which are constructed specially for shipping purposes. Wagons in working order maintained by contract. EDMUND FOWLER, Managing Director.

WAGON WORKS.—SMETHWICK, BIRMINGHAM.

\*.\* Loans received on Debenture; particulars on application.

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of TUCKINGMILL, CORNWALL; ADELPHI BANK CHAMBERS, SOUTH JOHN-STREET, LIVERPOOL; and 85, GRACECHURCH-STREET, LONDON, E.C., MANUFACTURERS AND ORIGINAL PATENTEES of SAFETY-FUSE, having been informed that the name of their firm has been attached to fuse not of their manufacture, beg to call the attention of the trade and public to the following announcement:—FUSE MANUFACTURED by them has TWO SEPARATE THREADS PASSING THROUGH THE COLUMN OF GUNPOWDER, and BICKFORD, SMITH, AND CO. CLAIM SUCH TWO SEPARATE THREADS AS THEIR TRADE MARK.





PARIS INTERNATIONAL EXHIBITION, 1867.



VIENNA INTERNATIONAL EXHIBITION, 1873.



LONDON INTERNATIONAL EXHIBITION, 1874.



CORNWALL POLYTECHNIC SOCIETY, 1867 and 1874.

# TANGYE BROTHERS AND HOLMAN,

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AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

## The "SPECIAL" DIRECT-ACTING STEAM PUMP WITH Holman's Patent Self-acting Exhaust Steam Condensers.

UPWARDS OF 12,000 "SPECIAL" STEAM PUMPS ARE IN USE

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is no longer than the pump. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.

### Holman's Condenser

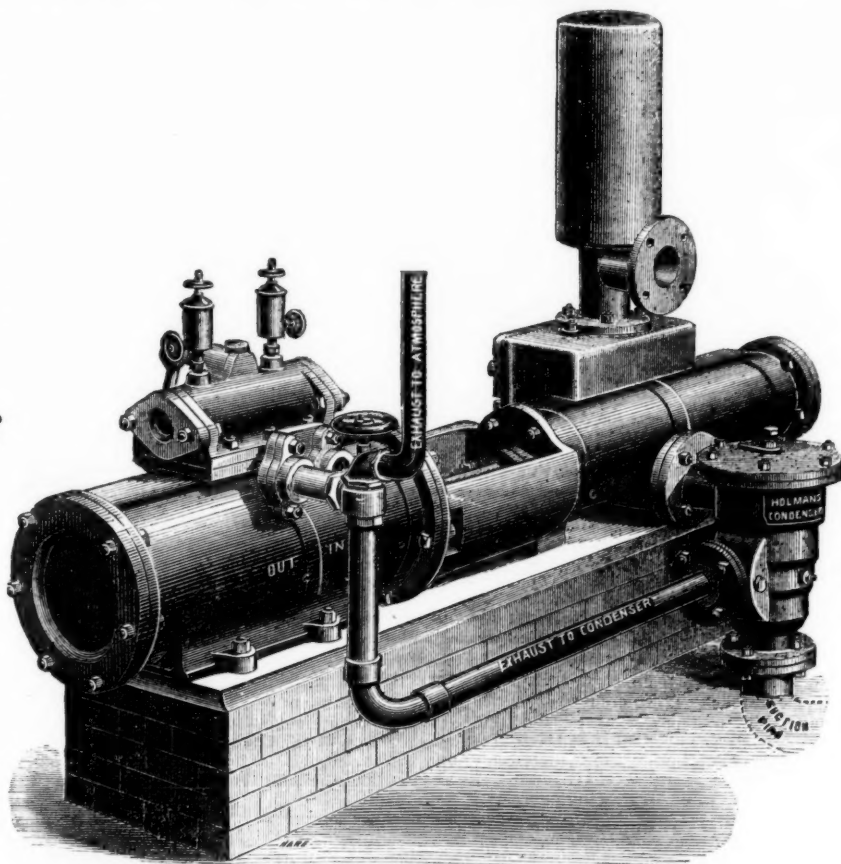
Turns waste steam into  
GREAT POWER.

SAVES HALF ITS COST IN PIPES AND CONNECTIONS.

PREVENTS ALL ESCAPE OF STEAM IN MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

SAVES TWENTY TO FIFTY PER CENT.  
OF FUEL.



WILLIAM ELLIOT, Esq., of the Weardale and Coal Company, writes under date Sept. 1875, as follows:—"We have now THIRTY of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—of them employed pumping water out of pits to the depth of 50 fms.—others employed in pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers."

Messrs. BURT, BOULTON, and HART, Chemical Manufacturers, of London, use FORTY of the "SPECIAL" STEAM PUMPS at their works.

### HOLMAN'S CONDENSER

Are made to suit any size and kind of the Pump. They form a part of the suction of the Pump, and while they effectually condense the exhaust steam they produce a vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Pump and effecting a saving in fuel of from 20 per cent.

In Mining operations these Condensers are of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the water, but is returned with it into the boiler.

## GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	10
Diameter of Water Cylinder...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	10
Length of Stroke.....In.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	30
Gallons per hour .....	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,500	30,000
Price of Special Pump...£	18	18	20	25	22 10	27 10	32 10	25	30	35	40	30	35	40	45	50	40	45	50	55	65	50	55	60	70	85	110
Extra, if fitted with Holman's Condenser and Blow-through Valve .....	£7	£7	£9	£11	£8 10	£11 10s	£12 10s	£9	£12	£15	£15	£10	£13	£15	£16	£22	£13	£16	£16	£22	£22	£16	£16	£23	£24	£35	£45

CONTINUED.

Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18	18
Diameter of Water Cylinder..In	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14	16
Length of Stroke .....In	12	18	24	24	18	18	18	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour .....	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000	60,000
Price of Special Pump..£	65	75	90	100	75	80	85	110	120	140	110	120	130	140	160	180	140	150	160	180	200	180	190	210	230	250
Extra, if fitted with Holman's Condenser and Blow-through Valve .....	£23	£24	£35	£35	£20	£27	£27	£38	£38	£50	£28	£28	£40	£40	£55	£55	£28	£40	£40	£55	£55	£45	£45	£50	£55	£65

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

### The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

NORLEY COLLIERY, WIGAN.

Messrs. TANGYE BROTHERS AND HOLMAN.

GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economical sense, a most valuable feature in the drainage of underground work-

ings. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10½ lbs. per square inch, even when we run the Pump upwards of 80 strokes (166 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge

indicating a steam pressure of 36 lbs. per square inch, 80 yards from the boiler, and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The economy thus shown is really so great that the cost of the Condenser must be paid in a very short time. (Signed) J. THOMAS.

NORTH OF ENGLAND HOUSE  
SOUTH WALES HOUSE...

TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.  
TANGYE BROTHERS AND STEEL, Tradedge Place, S.W. PORT. Mon.; and Oxford Buildings, SWANSEA.



# BLAKE'S PATENT STEAM PUMP.

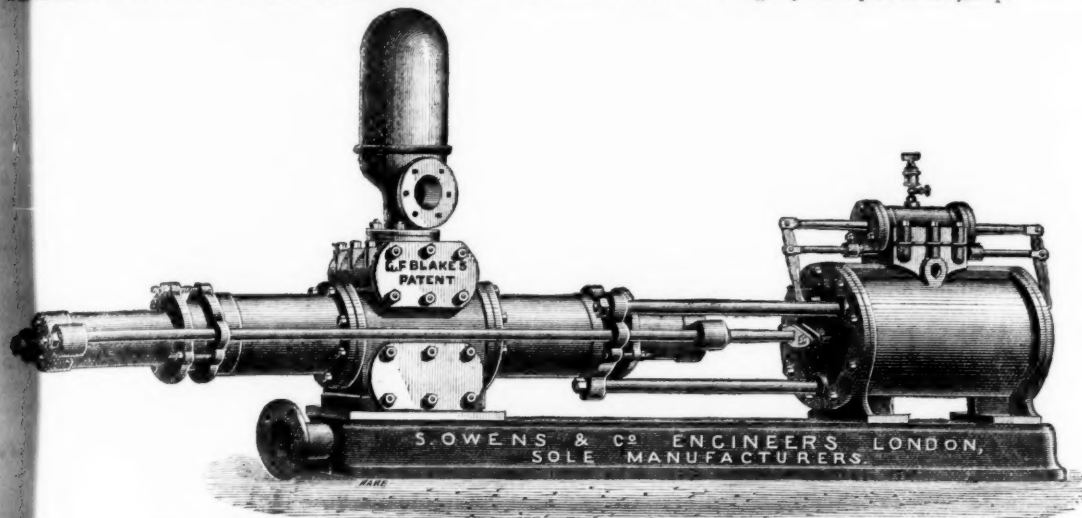
MORE THAN 10,000 IN USE.

SOLE MAKERS FOR GREAT BRITAIN,

## S. OWENS & CO.,

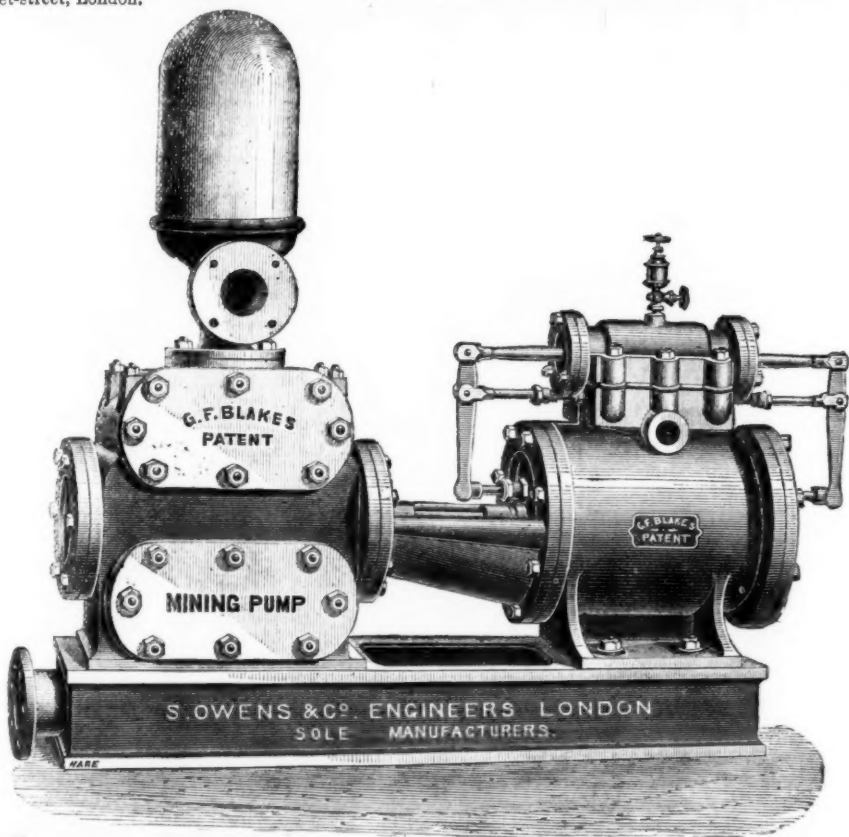
Hydraulic and General Engineers, Whitefriars-street, London;  
And at 195, Buchanan-street, Glasgow (W. HUME, AGENT).

These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is required to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily replaced by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



Blake's Improved Double-plunger Steam Pump.  
S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder,

Any combination of these Pumps may be had to suit circumstances. The following are some of the sizes SUITABLE FOR MINING PURPOSES:—

Di. of steam cylinders.. In.	12	12	12	12	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	24	24
Di. of water cylinders.. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6	8
Length of stroke... In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	36	42
No. of strokes per minute..	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	20	17	17	17	15
Quantity in gallons per hour, approximately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720	12000

PRICES FOR THE ABOVE, OR ANY SPECIAL SIZE, AND ILLUSTRATED CATALOGUES FURNISHED ON APPLICATION

### PATENT CONDENSERS

Can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency

The Blake Pump will work under water, and as efficiently with compressed air as with steam.

BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

### MINERS

PRICKERS AND STEMMERS

OF

MUNTZ'S METAL.

ACCORDING TO THE NEW MINES REGULATION ACT.  
BEST KNOWN MATERIAL.

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM

### SOLID DRAWN BRASS BOILER TUBES

FOR LOCOMOTIVE AND MARINE BOILERS,

EITHER

MUNTZ'S OR GREEN'S PROCESS

MUNTZ'S METAL COMPANY (LIMITED),

FRENCH WALLS,

NEAR BIRMINGHAM.

### MINERS' LAMP

AND

GAUZE MANUFACTORY,

Established Half-a-century.

JOSH. COOKE AND CO.

SAFETY LAMPS



MADE TO DRAWING, DESCRIPTION, OR MODEL. Illustrated

Price Lists free, by post or otherwise.

VALUABLE TESTIMONIALS FROM EMINENT FIRMS.

MIDLAND DAVY LAMP WORKS,

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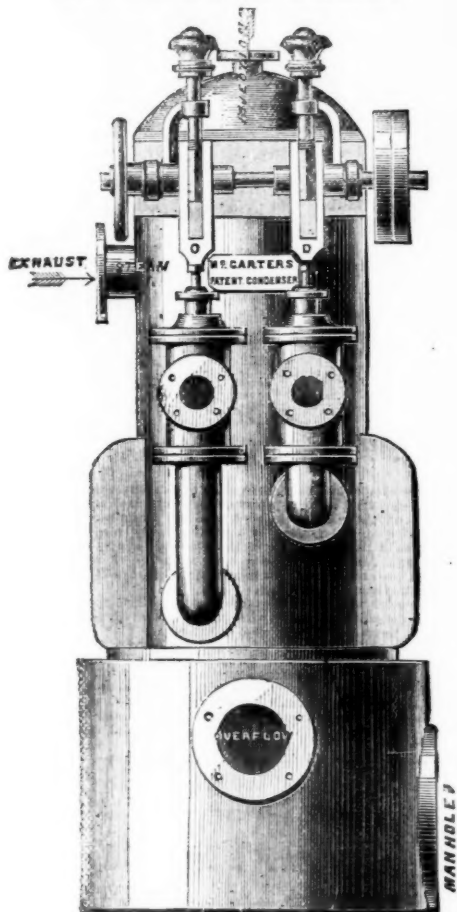
BIRMINGHAM.

LICENSED MAKERS.

KIRK, RAMSDEN, AND CO.

(LIMITED)

HUDDERSFIELD.



These Condensers can be placed inside or outside of the engine-house. They draw their own injection water, and require no foundation. Specially adapted to Pumping and Winding Engines, effecting a saving from 20 to 30 per cent. in coal, and increases the power of the Engine.

Engineers, Millwrights, Founders,

AND

FORGE PROPRIETORS.

Makers of Pumping, Winding, and Blowing Engines,  
Condensing and Non-condensing.

Horizontal and Beam Engines for all purposes.

Now ready, price 5s., by post 5s. 3d., Sixth Edition; Twentieth Thousand Copies much improved, and enlarged to nearly 300 pages.

HOPKINSON'S CONVERSATIONS ON MINES, between Father and Son. The additions to the work are near 80 pages of useful information, principally questions and answers, with a view to assist applicants intending to pass an examination as mine managers, together with tables, rules of measurement, and other information on the moving and propelling power of ventilation, a subject which has caused so much controversy.

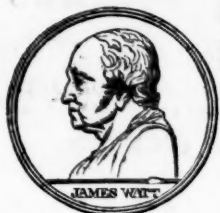
The following few testimonials, out of hundreds in Mr. Hopkinson's possession speak to the value of the work:—  
"The book cannot fail to be well received by all connected with collieries."—  
Mining Journal.

"Its contents are really valuable to the miners of this country."—  
Miners' Conference.  
"Such a work, well understood by miners, would do more to prevent colliery accidents than an army of inspectors."—  
Colliery Guardian.

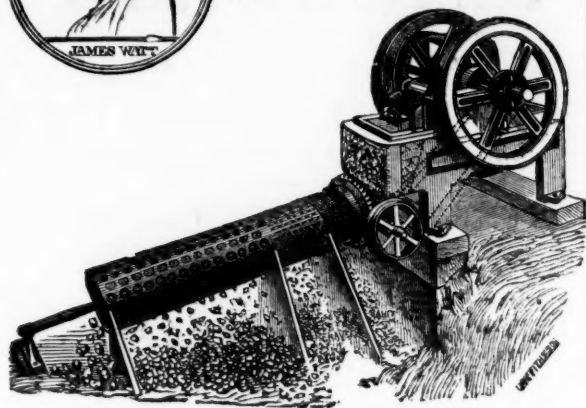
London: MINING JOURNAL Office, 26, Fleet-street; and to be had of all book sellers.



**BUYERS are CAUTIONED against Purchasing any Infringements of H.R.M.'s Numerous PATENTS.**



**Ore Crushers, H. R. M.'s  
New Patent Crushing Jaw  
EXTENSIVELY USED  
BY MINE OWNERS.**



**FIXED MACHINE AND SCREEN,**  
Specially designed and largely used for

Crushing Pyrites, Limestone, Cement, Coal, Rocks, &c.,  
AT ALL THE PRINCIPAL WORKS IN THE KINGDOM.

Takes in 20 in. by 9 in., and is shown by TESTIMONIALS to be  
breaking from 100 to 120 tons per day of 10 hours, at  
THREE HALF-PENCE PER TON.

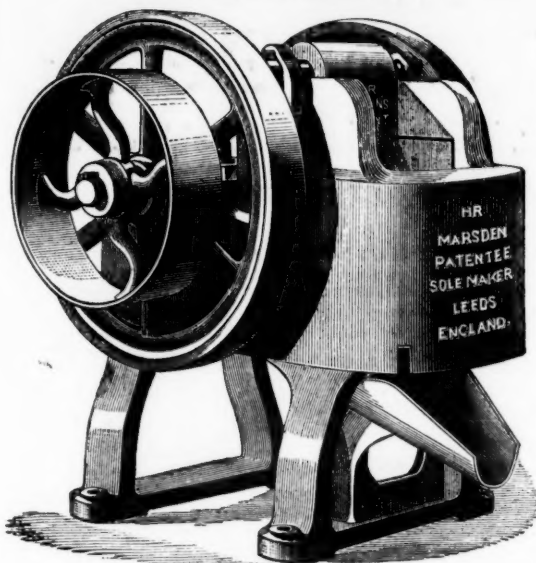
FEW WORKING PARTS.

SMALL WEAR AND TEAR.

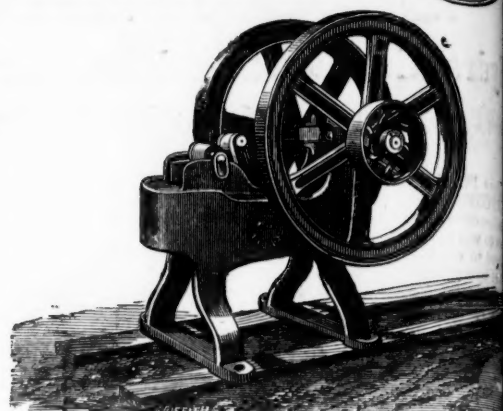
FREEDOM FROM BREAKAGE.

**H. R. MARSDEN, LEEDS,** Mining Improvements  
**ENGINEER.** Revolving Picking  
Table.

1150 NOW IN USE.



"The Machine is well designed, simple, but substantially made  
and is capable of reducing any material to fine gravel, such as cop-  
per ore, and is certainly preferable to the stamps in use for that  
purpose."—*Mining Journal*.



**MACHINE FOR HAND OR STEAM POWER.**

For making gravel for gentlemen's walks in parks and gardens  
for grinding emery, flints, fossils, &c., for pulverising silver,  
and other ores; also gold quartz, and especially useful to  
metallurgists for sampling, as it is capable of pulverising  
hardest material, and can be turned by one man with

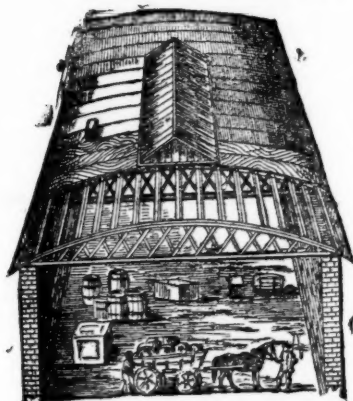
REFERENCES TO ALL PARTS OF THE WORLD,  
SIMPLICITY OF CONSTRUCTION. EXCELLENCE OF  
ECONOMY OF POWER

THESE STONE BREAKERS AND ORE CRUSHERS ARE UNIVERSALLY PRONOUNCED THE ONLY PERFECT SUCCESS.

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**Sole Maker & Patentee, H. R. MARSDEN, SOHO FOUNDRY, LEEDS, ENGLAND**

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FELT ROOFING,**



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GREAT ECONOMY  
AND  
CLEAR WIDE SPACE.

For particulars, estimates,  
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MANCHESTER;  
OR  
CORPORATION STREET,  
BELFAST.

The above drawing shows the construction of this cheap and handsome roof, now  
much used for covering factories, stores, sheds farm buildings, &c., the principal  
of which are double bow and string girders of best pine timber, sheathed with 1/4 in.  
boards, supported on the girders by purlins running longitudinally, the whole  
being covered with patent waterproof roofing felt. These roofs so combine light-  
ness with strength that they can be constructed up to 100 ft. span without centre  
supports, thus not only affording a clear wide space, but effecting a great saving  
both in the cost of roof and uprights.

They can be made with or without top-lights, ventilators, &c. Felt roofs of any  
description executed in accordance with plans. Prices for plain roofs from 30s. to  
80s. per square, according to span, size, and situation.

Manufacturers of PATENT FELTED SHEATHING, for covering ships' bot-  
toms under copper or zinc.

DRY HAIR FELT, for deadening sound and for covering steam pipes, thereby  
saving 25 per cent. in fuel by preventing the radiation of heat.

PATENT ASPHALTE ROOFING FELT, price 1d. per square foot.  
Wholesale buyers and exporters allowed liberal discounts.

PATENT ROOFING VARNISH, in boxes from 3 gallons to any quantity re-  
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By a special method of preparation, this leather is made solid, perfectly close in  
texture, and impermeable to water; it has, therefore, all the qualifications essen-  
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It may be had of all dealers in leather, and of—

I. AND T. HEPBURN AND SONS,  
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THE GREAT ADVERTISING MEDIUM FOR WALES.

**THE SOUTH WALES EVENING TELEGRAM**  
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sands of investors reside. Legal and Public Companies' advertisements, 6d. a line  
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SELECTED BY THE BRITISH AND OTHER GOVERNMENTS.

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SUBJECT TO DISCOUNT.

**IMPROVED AIR COMPRESSORS.**

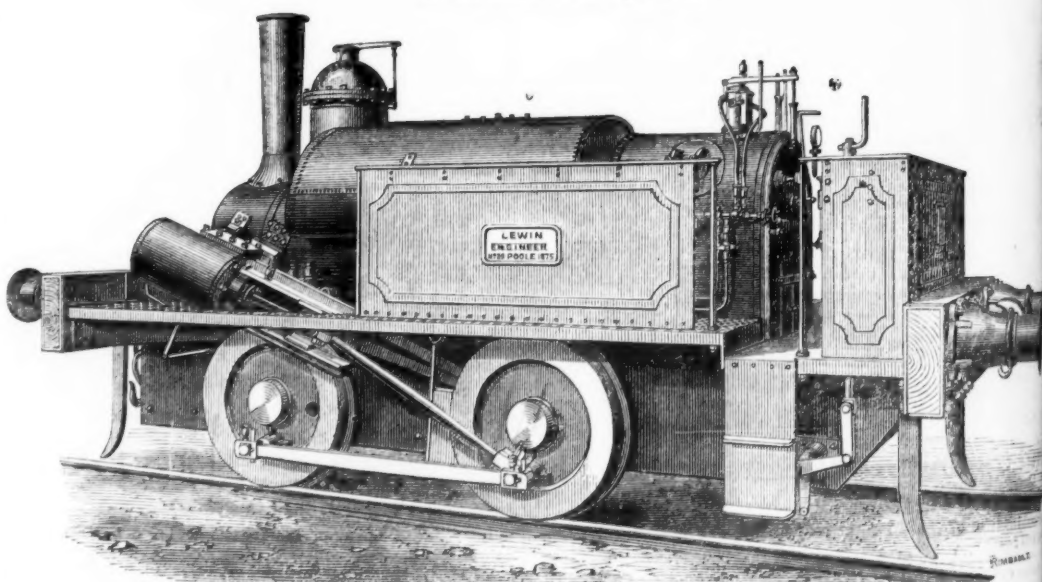
Makers of Pumping and Winding Engines, Steam Hammer  
Boilers, Pump Pipes, &c., &c. Castings of all kinds.

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WHITEHAVEN.**

**LEWIN, POOLE, DORSET**

Speciality in cheap colliery and contractors' Locomotives,  
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Prices from £300 upwards.



**PORTABLE FIXED AND VERTICAL ENGINE  
WINDING AND PUMPING GEAR.**

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